

# Palindromic-Type Pandigital Patterns in Pythagorean Triples - II

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## Abstract

This paper brings examples of **Palindromic-Type Pandigital Patterns in Pythagorean Triples**. These are constructed in a padronized way. This means that in all the patterns we have **pandigital palindromic-type** expressions. The only change appears is in the middle term and last numbers in the first and third values. The results are obtained in such a way that we have total values as: 9, 99, 999, 9999, 99999, etc. The construction is based on a procedure well known in the literature. There is very much uniformity among the results. In this work we have palindromic-type expressions as **10201**, **102030201**, etc., while in first part [8], the expressions are of type **121**, **1231**, etc.,

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# 1 Procedure

Let's consider the following three functions:

$$\begin{aligned} F(m, n) &:= m^2 - n^2 \\ G(m, n) &:= 2mn \\ H(m, n) &:= m^2 + n^2 \end{aligned} \tag{1.1}$$

Then we can easily check that

$$\begin{aligned} F(m, n)^2 + G(m, n)^2 &= (m^2 - n^2)^2 + (2mn)^2 \\ &= m^4 - 2m^2n^2 + n^4 + 4m^2n^2 \\ &= m^4 + 2m^2n^2 + n^4 \\ &= (m^2 + n^2)^2 = H(m, n)^2. \end{aligned}$$

This proves that the triple  $(F, G, H)$  is a **Pythagorean triple**. The Procedure (1.1) is very famous in the literature [1]. Some patterned examples based on the Procedure (1.1) are studied by author [7]. Some particular cases are as follows:

$$\begin{aligned} (F(3, 2), G(3, 2), H(3, 2)) &\Rightarrow (5, 12, 13) \\ (F(4, 2), G(4, 2), H(4, 2)) &\Rightarrow (12, 16, 20) \\ (F(5, 2), G(5, 2), H(5, 2)) &\Rightarrow (21, 20, 29) \\ (F(6, 2), G(6, 2), H(6, 2)) &\Rightarrow (32, 24, 40) \\ (F(9, 3), G(9, 3), H(9, 3)) &\Rightarrow (72, 54, 90) \\ (F(9, 7), G(9, 7), H(9, 7)) &\Rightarrow (32, 126, 130) \\ (F(10, 9), G(10, 9), H(10, 9)) &\Rightarrow (19, 180, 181) \end{aligned}$$

The aim of this work is to write **Palindromic-Type Pandigital Patterns in Pythagorean Triples**. This we have done in three different ways. First way give 9 patterns, second way give 99 patterns, and the third way give 999 patterns. All the patterns are very much similar in terms of palindromic-type pandigital patterns. This similarity we call as "**uniformity of results**". This uniformity is explain in the following section.

## 1.1 Uniformity of Results

In order to get **Palindromic-Type Pandigital Patterns in Pythagorean Triples**, the following pattern appears automatically in the beginning of each part:

$$\begin{aligned} 99^2 + 20^2 &= 101^2 && := 10201 \\ 9999^2 + 200^2 &= 10001^2 && := 100020001 \\ 999999^2 + 2000^2 &= 1000001^2 && := 1000002000001 \\ 99999999^2 + 20000^2 &= 100000001^2 && := 10000000200000001 \\ 9999999999^2 + 200000^2 &= 10000000001^2 && := 100000000020000000001 \\ 999999999999^2 + 2000000^2 &= 1000000000001^2 && := 1000000000002000000000001 \end{aligned} \tag{1.2}$$

The above pattern is obtained by considering  $n = 1; m = 9, 99, 999, 9999, 99999, \dots$  in following Procedure:

$$\begin{aligned}
 F_1(m, n) &:= m(2n + m) \\
 G_1(m, n) &:= 2n(n + m) \\
 H_1(m, n) &:= m^2 + 2mn + 2n^2
 \end{aligned}
 \tag{1.3}$$

More details on the Procedures given in (1.1) and (1.3) can be seen in Taneja [6, 7]. The results in this paper are divided in three groups based on first three lines of (1.2). **First group** is with 9 results, the **second group** is with 99 results, and the **third group** is with 999 results. In second and third groups first 19 patterns are written complete, and the other patterns are written just with first four lines. Following the similar lines, the continuation is obvious.

## 2 First Group

Below are 9 examples of **pattern in Pythagorean triples** with 9 digits from 1 to 9 written as **palindromic-type**, where the **first line** of first pattern is the same as **first line** of example (1.2).

### 2.1 For $n = 1, 2, 3, \dots, 7, 8, 9$ :

Let's consider

$$m = 10, 1010, 101010, 10101010, 1010101010, 101010101010, 10101010101010, 1010101010101010, 101010101010101010$$

in (1.1), then for each value of  $n = 1, 2, 3, \dots, 7, 8, 9$ ; there are 9 *palindromic-type pandigital Pythagorean patterns* given below:

$$\begin{aligned}
 &099^2 + 20^2 &&= 101^2 \\
 &1020099^2 + 2020^2 &&= 1020101^2 \\
 &10203020099^2 + 202020^2 &&= 10203020101^2 \\
 &102030403020099^2 + 20202020^2 &&= 102030403020101^2 \\
 &1020304050403020099^2 + 2020202020^2 &&= 1020304050403020101^2 \\
 &10203040506050403020099^2 + 202020202020^2 &&= 10203040506050403020101^2 \\
 &102030405060706050403020099^2 + 20202020202020^2 &&= 102030405060706050403020101^2 \\
 &1020304050607080706050403020099^2 + 2020202020202020^2 &&= 1020304050607080706050403020101^2 \\
 &10203040506070809080706050403020099^2 + 202020202020202020^2 &&= 10203040506070809080706050403020101^2
 \end{aligned}
 \tag{2.1}$$

$$\begin{aligned}
 &096^2 + 40^2 &&= 104^2 \\
 &1020096^2 + 4040^2 &&= 1020104^2 \\
 &10203020096^2 + 404040^2 &&= 10203020104^2 \\
 &102030403020096^2 + 40404040^2 &&= 102030403020104^2 \\
 &1020304050403020096^2 + 4040404040^2 &&= 1020304050403020104^2 \\
 &10203040506050403020096^2 + 404040404040^2 &&= 10203040506050403020104^2 \\
 &102030405060706050403020096^2 + 40404040404040^2 &&= 102030405060706050403020104^2 \\
 &1020304050607080706050403020096^2 + 4040404040404040^2 &&= 1020304050607080706050403020104^2 \\
 &10203040506070809080706050403020096^2 + 404040404040404040^2 &&= 10203040506070809080706050403020104^2
 \end{aligned}
 \tag{2.2}$$

$$\begin{aligned}
& 091^2 + 60^2 &= 1\ 09^2 \\
& 1020\ 091^2 + 6060^2 &= 10201\ 09^2 \\
& 10203020\ 091^2 + 606060^2 &= 102030201\ 09^2 \\
& 102030403020\ 091^2 + 60606060^2 &= 1020304030201\ 09^2 \\
& 1020304050403020\ 091^2 + 6060606060^2 &= 10203040504030201\ 09^2 \\
& 10203040506050403020\ 091^2 + 606060606060^2 &= 102030405060504030201\ 09^2 \\
& 102030405060706050403020\ 091^2 + 60606060606060^2 &= 1020304050607060504030201\ 09^2 \\
& 1020304050607080706050403020\ 091^2 + 6060606060606060^2 &= 10203040506070807060504030201\ 09^2 \\
& 10203040506070809080706050403020\ 091^2 + 606060606060606060^2 &= 102030405060708090807060504030201\ 09^2
\end{aligned}
\tag{2.3}$$

$$\begin{aligned}
& 084^2 + 80^2 &= 1\ 16^2 \\
& 1020\ 084^2 + 8080^2 &= 10201\ 16^2 \\
& 10203020\ 084^2 + 808080^2 &= 102030201\ 16^2 \\
& 102030403020\ 084^2 + 80808080^2 &= 1020304030201\ 16^2 \\
& 1020304050403020\ 084^2 + 8080808080^2 &= 10203040504030201\ 16^2 \\
& 10203040506050403020\ 084^2 + 808080808080^2 &= 102030405060504030201\ 16^2 \\
& 102030405060706050403020\ 084^2 + 80808080808080^2 &= 1020304050607060504030201\ 16^2 \\
& 1020304050607080706050403020\ 084^2 + 8080808080808080^2 &= 10203040506070807060504030201\ 16^2 \\
& 10203040506070809080706050403020\ 084^2 + 808080808080808080^2 &= 102030405060708090807060504030201\ 16^2
\end{aligned}
\tag{2.4}$$

$$\begin{aligned}
& 075^2 + 100^2 &= 1\ 25^2 \\
& 1020\ 075^2 + 10100^2 &= 10201\ 25^2 \\
& 10203020\ 075^2 + 1010100^2 &= 102030201\ 25^2 \\
& 102030403020\ 075^2 + 101010100^2 &= 1020304030201\ 25^2 \\
& 1020304050403020\ 075^2 + 10101010100^2 &= 10203040504030201\ 25^2 \\
& 10203040506050403020\ 075^2 + 1010101010100^2 &= 102030405060504030201\ 25^2 \\
& 102030405060706050403020\ 075^2 + 101010101010100^2 &= 1020304050607060504030201\ 25^2 \\
& 1020304050607080706050403020\ 075^2 + 10101010101010100^2 &= 10203040506070807060504030201\ 25^2 \\
& 10203040506070809080706050403020\ 075^2 + 1010101010101010100^2 &= 102030405060708090807060504030201\ 25^2
\end{aligned}
\tag{2.5}$$

$$\begin{aligned}
&064^2 + 120^2 &&= 136^2 \\
&1020064^2 + 12120^2 &&= 1020136^2 \\
&10203020064^2 + 1212120^2 &&= 10203020136^2 \\
&102030403020064^2 + 121212120^2 &&= 102030403020136^2 \\
&1020304050403020064^2 + 12121212120^2 &&= 1020304050403020136^2 \\
&10203040506050403020064^2 + 1212121212120^2 &&= 10203040506050403020136^2 \\
&102030405060706050403020064^2 + 121212121212120^2 &&= 102030405060706050403020136^2 \\
&1020304050607080706050403020064^2 + 12121212121212120^2 &&= 1020304050607080706050403020136^2 \\
&10203040506070809080706050403020064^2 + 1212121212121212120^2 &&= 10203040506070809080706050403020136^2
\end{aligned}
\tag{2.6}$$

$$\begin{aligned}
&051^2 + 140^2 &&= 149^2 \\
&1020051^2 + 14140^2 &&= 1020149^2 \\
&10203020051^2 + 1414140^2 &&= 10203020149^2 \\
&102030403020051^2 + 141414140^2 &&= 102030403020149^2 \\
&1020304050403020051^2 + 14141414140^2 &&= 1020304050403020149^2 \\
&10203040506050403020051^2 + 1414141414140^2 &&= 10203040506050403020149^2 \\
&102030405060706050403020051^2 + 141414141414140^2 &&= 102030405060706050403020149^2 \\
&1020304050607080706050403020051^2 + 14141414141414140^2 &&= 1020304050607080706050403020149^2 \\
&10203040506070809080706050403020051^2 + 1414141414141414140^2 &&= 10203040506070809080706050403020149^2
\end{aligned}
\tag{2.7}$$

$$\begin{aligned}
&036^2 + 160^2 &&= 164^2 \\
&1020036^2 + 16160^2 &&= 1020164^2 \\
&10203020036^2 + 1616160^2 &&= 10203020164^2 \\
&102030403020036^2 + 161616160^2 &&= 102030403020164^2 \\
&1020304050403020036^2 + 16161616160^2 &&= 1020304050403020164^2 \\
&10203040506050403020036^2 + 1616161616160^2 &&= 10203040506050403020164^2 \\
&102030405060706050403020036^2 + 161616161616160^2 &&= 102030405060706050403020164^2 \\
&1020304050607080706050403020036^2 + 16161616161616160^2 &&= 1020304050607080706050403020164^2 \\
&10203040506070809080706050403020036^2 + 1616161616161616160^2 &&= 10203040506070809080706050403020164^2
\end{aligned}
\tag{2.8}$$

$$\begin{aligned}
019^2 + 180^2 &= 181^2 \\
1020019^2 + 18180^2 &= 1020181^2 \\
10203020019^2 + 1818180^2 &= 10203020181^2 \\
102030403020019^2 + 181818180^2 &= 102030403020181^2 \\
1020304050403020019^2 + 18181818180^2 &= 1020304050403020181^2 \\
10203040506050403020019^2 + 1818181818180^2 &= 10203040506050403020181^2 \\
102030405060706050403020019^2 + 181818181818180^2 &= 102030405060706050403020181^2 \\
1020304050607080706050403020019^2 + 18181818181818180^2 &= 1020304050607080706050403020181^2 \\
10203040506070809080706050403020019^2 + 1818181818181818180^2 &= 10203040506070809080706050403020181^2
\end{aligned} \tag{2.9}$$

Based on above 9 results given in subsection 2.1, below are some remarks:

**Remark 1.** (i) The *first line* of first pattern (2.1) is the *first line* as given in Example (1.2), i.e.,

$$99^2 + 20^2 = 101^2.$$

(ii) There is symmetry in squared value for last two digits of each Example:

$$\begin{aligned}
\text{Example (2.1)} &\Rightarrow 01 = 1^2 \\
\text{Example (2.2)} &\Rightarrow 04 = 2^2 \\
\text{Example (2.3)} &\Rightarrow 09 = 3^2 \\
\text{Example (2.1)} &\Rightarrow 16 = 4^2 \\
\text{Example (2.2)} &\Rightarrow 25 = 5^2 \\
\text{Example (2.3)} &\Rightarrow 36 = 6^2 \\
\text{Example (2.7)} &\Rightarrow 49 = 7^2 \\
\text{Example (2.8)} &\Rightarrow 64 = 8^2 \\
\text{Example (2.9)} &\Rightarrow 81 = 9^2.
\end{aligned}$$

(iii) The sum of the *last two digits* of first and third members of each line is same, i.e.,

$$\begin{aligned}
\text{Example (2.1)} &\Rightarrow 99 + 01 = 100 \\
\text{Example (2.2)} &\Rightarrow 96 + 04 = 100 \\
\text{Example (2.3)} &\Rightarrow 91 + 09 = 100 \\
\text{Example (2.4)} &\Rightarrow 84 + 16 = 100 \\
\text{Example (2.5)} &\Rightarrow 75 + 25 = 100 \\
\text{Example (2.6)} &\Rightarrow 64 + 36 = 100 \\
\text{Example (2.7)} &\Rightarrow 51 + 49 = 100 \\
\text{Example (2.8)} &\Rightarrow 19 + 64 = 100 \\
\text{Example (2.9)} &\Rightarrow 19 + 81 = 100
\end{aligned}$$

### 3 Second Group

Below are 99 examples of **pattern in Pythagorean triples** with 9 digits from 1 to 9 written as **palindromic-type**, where the **first line** of first pattern is the same as **second line** of example (1.2).

#### 3.1 For $n = 1, 2, 3, \dots, 97, 98, 99$ :

This subsection is divided in two parts. The first part give first 19 results as complete patterns. The other 80 are written only with four lines. The other four lines follows on similar lines.

##### 3.1.1 For $n = 1, 2, 3, \dots, 17, 18, 19$ :

Let's consider

$$m = 100, 10100, 1010100, 101010100, 10101010100, 1010101010100, 101010101010100, 10101010101010100, 1010101010101010100$$

in (1.1), then for each value of  $n = 1, 2, 3, \dots, 17, 18, 19$ ; there are 19 *palindromic-type pandigital Pythagorean patterns* given below:

$$\begin{aligned}
 &09999^2 + 200^2 &&= 10001^2 \\
 &102009999^2 + 20200^2 &&= 102010001^2 \\
 &1020302009999^2 + 2020200^2 &&= 1020302010001^2 \\
 &10203040302009999^2 + 202020200^2 &&= 10203040302010001^2 \\
 &102030405040302009999^2 + 20202020200^2 &&= 102030405040302010001^2 \\
 &1020304050605040302009999^2 + 2020202020200^2 &&= 1020304050605040302010001^2 \\
 &10203040506070605040302009999^2 + 202020202020200^2 &&= 10203040506070605040302010001^2 \\
 &102030405060708070605040302009999^2 + 20202020202020200^2 &&= 102030405060708070605040302010001^2 \\
 &1020304050607080908070605040302009999^2 + 2020202020202020200^2 &&= 1020304050607080908070605040302010001^2
 \end{aligned}
 \tag{3.1}$$

$$\begin{aligned}
 &09996^2 + 400^2 &&= 10004^2 \\
 &102009996^2 + 40400^2 &&= 102010004^2 \\
 &1020302009996^2 + 4040400^2 &&= 1020302010004^2 \\
 &10203040302009996^2 + 404040400^2 &&= 10203040302010004^2 \\
 &102030405040302009996^2 + 40404040400^2 &&= 102030405040302010004^2 \\
 &1020304050605040302009996^2 + 4040404040400^2 &&= 1020304050605040302010004^2 \\
 &10203040506070605040302009996^2 + 404040404040400^2 &&= 10203040506070605040302010004^2 \\
 &102030405060708070605040302009996^2 + 40404040404040400^2 &&= 102030405060708070605040302010004^2 \\
 &1020304050607080908070605040302009996^2 + 4040404040404040400^2 &&= 1020304050607080908070605040302010004^2
 \end{aligned}
 \tag{3.2}$$

$$\begin{aligned}
& 09991^2 + 600^2 &= 1\ 0009^2 \\
& 1020\ 09991^2 + 60600^2 &= 10201\ 0009^2 \\
& 10203020\ 09991^2 + 6060600^2 &= 102030201\ 0009^2 \\
& 102030403020\ 09991^2 + 606060600^2 &= 1020304030201\ 0009^2 \\
& 1020304050403020\ 09991^2 + 60606060600^2 &= 10203040504030201\ 0009^2 \\
& 10203040506050403020\ 09991^2 + 6060606060600^2 &= 102030405060504030201\ 0009^2 \\
& 102030405060706050403020\ 09991^2 + 606060606060600^2 &= 1020304050607060504030201\ 0009^2 \\
& 1020304050607080706050403020\ 09991^2 + 60606060606060600^2 &= 10203040506070807060504030201\ 0009^2 \\
& 10203040506070809080706050403020\ 09991^2 + 6060606060606060600^2 &= 102030405060708090807060504030201\ 0009^2
\end{aligned}
\tag{3.3}$$

$$\begin{aligned}
& 09984^2 + 800^2 &= 1\ 0016^2 \\
& 1020\ 09984^2 + 80800^2 &= 10201\ 0016^2 \\
& 10203020\ 09984^2 + 8080800^2 &= 102030201\ 0016^2 \\
& 102030403020\ 09984^2 + 808080800^2 &= 1020304030201\ 0016^2 \\
& 1020304050403020\ 09984^2 + 80808080800^2 &= 10203040504030201\ 0016^2 \\
& 10203040506050403020\ 09984^2 + 8080808080800^2 &= 102030405060504030201\ 0016^2 \\
& 102030405060706050403020\ 09984^2 + 808080808080800^2 &= 1020304050607060504030201\ 0016^2 \\
& 1020304050607080706050403020\ 09984^2 + 80808080808080800^2 &= 10203040506070807060504030201\ 0016^2 \\
& 10203040506070809080706050403020\ 09984^2 + 8080808080808080800^2 &= 102030405060708090807060504030201\ 0016^2
\end{aligned}
\tag{3.4}$$

$$\begin{aligned}
& 09975^2 + 1000^2 &= 1\ 0025^2 \\
& 1020\ 09975^2 + 101000^2 &= 10201\ 0025^2 \\
& 10203020\ 09975^2 + 10101000^2 &= 102030201\ 0025^2 \\
& 102030403020\ 09975^2 + 1010101000^2 &= 1020304030201\ 0025^2 \\
& 1020304050403020\ 09975^2 + 101010101000^2 &= 10203040504030201\ 0025^2 \\
& 10203040506050403020\ 09975^2 + 10101010101000^2 &= 102030405060504030201\ 0025^2 \\
& 102030405060706050403020\ 09975^2 + 1010101010101000^2 &= 1020304050607060504030201\ 0025^2 \\
& 1020304050607080706050403020\ 09975^2 + 101010101010101000^2 &= 10203040506070807060504030201\ 0025^2 \\
& 10203040506070809080706050403020\ 09975^2 + 10101010101010101000^2 &= 102030405060708090807060504030201\ 0025^2
\end{aligned}
\tag{3.5}$$



$$\begin{aligned}
& 09964^2 + 1200^2 &= & \mathbf{1\ 0036^2} \\
& \mathbf{1020\ 09964^2 + 121200^2} &= & \mathbf{10201\ 0036^2} \\
& \mathbf{10203020\ 09964^2 + 12121200^2} &= & \mathbf{102030201\ 0036^2} \\
& \mathbf{102030403020\ 09964^2 + 1212121200^2} &= & \mathbf{1020304030201\ 0036^2} \\
& \mathbf{1020304050403020\ 09964^2 + 121212121200^2} &= & \mathbf{10203040504030201\ 0036^2} \\
& \mathbf{10203040506050403020\ 09964^2 + 12121212121200^2} &= & \mathbf{102030405060504030201\ 0036^2} \\
& \mathbf{102030405060706050403020\ 09964^2 + 1212121212121200^2} &= & \mathbf{1020304050607060504030201\ 0036^2} \\
& \mathbf{1020304050607080706050403020\ 09964^2 + 121212121212121200^2} &= & \mathbf{10203040506070807060504030201\ 0036^2} \\
& \mathbf{10203040506070809080706050403020\ 09964^2 + 12121212121212121200^2} &= & \mathbf{102030405060708090807060504030201\ 0036^2} \\
\end{aligned}
\tag{3.6}$$

$$\begin{aligned}
& 09951^2 + 1400^2 &= & \mathbf{1\ 0049^2} \\
& \mathbf{1020\ 09951^2 + 141400^2} &= & \mathbf{10201\ 0049^2} \\
& \mathbf{10203020\ 09951^2 + 14141400^2} &= & \mathbf{102030201\ 0049^2} \\
& \mathbf{102030403020\ 09951^2 + 1414141400^2} &= & \mathbf{1020304030201\ 0049^2} \\
& \mathbf{1020304050403020\ 09951^2 + 141414141400^2} &= & \mathbf{10203040504030201\ 0049^2} \\
& \mathbf{10203040506050403020\ 09951^2 + 14141414141400^2} &= & \mathbf{102030405060504030201\ 0049^2} \\
& \mathbf{102030405060706050403020\ 09951^2 + 1414141414141400^2} &= & \mathbf{1020304050607060504030201\ 0049^2} \\
& \mathbf{1020304050607080706050403020\ 09951^2 + 141414141414141400^2} &= & \mathbf{10203040506070807060504030201\ 0049^2} \\
& \mathbf{10203040506070809080706050403020\ 09951^2 + 14141414141414141400^2} &= & \mathbf{102030405060708090807060504030201\ 0049^2} \\
\end{aligned}
\tag{3.7}$$

$$\begin{aligned}
& 09936^2 + 1600^2 &= & \mathbf{1\ 0064^2} \\
& \mathbf{1020\ 09936^2 + 161600^2} &= & \mathbf{10201\ 0064^2} \\
& \mathbf{10203020\ 09936^2 + 16161600^2} &= & \mathbf{102030201\ 0064^2} \\
& \mathbf{102030403020\ 09936^2 + 1616161600^2} &= & \mathbf{1020304030201\ 0064^2} \\
& \mathbf{1020304050403020\ 09936^2 + 161616161600^2} &= & \mathbf{10203040504030201\ 0064^2} \\
& \mathbf{10203040506050403020\ 09936^2 + 16161616161600^2} &= & \mathbf{102030405060504030201\ 0064^2} \\
& \mathbf{102030405060706050403020\ 09936^2 + 1616161616161600^2} &= & \mathbf{1020304050607060504030201\ 0064^2} \\
& \mathbf{1020304050607080706050403020\ 09936^2 + 161616161616161600^2} &= & \mathbf{10203040506070807060504030201\ 0064^2} \\
& \mathbf{10203040506070809080706050403020\ 09936^2 + 16161616161616161600^2} &= & \mathbf{102030405060708090807060504030201\ 0064^2} \\
\end{aligned}
\tag{3.8}$$

$$\begin{aligned}
 &09919^2 + 1800^2 &&= 1\ 0081^2 \\
 &1020\ 09919^2 + 181800^2 &&= 10201\ 0081^2 \\
 &10203020\ 09919^2 + 18181800^2 &&= 102030201\ 0081^2 \\
 &102030403020\ 09919^2 + 1818181800^2 &&= 1020304030201\ 0081^2 \\
 &1020304050403020\ 09919^2 + 181818181800^2 &&= 10203040504030201\ 0081^2 \\
 &10203040506050403020\ 09919^2 + 18181818181800^2 &&= 102030405060504030201\ 0081^2 \\
 &102030405060706050403020\ 09919^2 + 1818181818181800^2 &&= 1020304050607060504030201\ 0081^2 \\
 &1020304050607080706050403020\ 09919^2 + 181818181818181800^2 &&= 10203040506070807060504030201\ 0081^2 \\
 &10203040506070809080706050403020\ 09919^2 + 18181818181818181800^2 &&= 102030405060708090807060504030201\ 0081^2
 \end{aligned}$$

(3.9)

$$\begin{aligned}
 &09900^2 + 2000^2 &&= 1\ 0100^2 \\
 &1020\ 09900^2 + 202000^2 &&= 10201\ 0100^2 \\
 &10203020\ 09900^2 + 20202000^2 &&= 102030201\ 0100^2 \\
 &102030403020\ 09900^2 + 2020202000^2 &&= 1020304030201\ 0100^2 \\
 &1020304050403020\ 09900^2 + 202020202000^2 &&= 10203040504030201\ 0100^2 \\
 &10203040506050403020\ 09900^2 + 20202020202000^2 &&= 102030405060504030201\ 0100^2 \\
 &102030405060706050403020\ 09900^2 + 2020202020202000^2 &&= 1020304050607060504030201\ 0100^2 \\
 &1020304050607080706050403020\ 09900^2 + 202020202020202000^2 &&= 10203040506070807060504030201\ 0100^2 \\
 &10203040506070809080706050403020\ 09900^2 + 20202020202020202000^2 &&= 102030405060708090807060504030201\ 0100^2
 \end{aligned}$$

(3.10)

$$\begin{aligned}
 &09879^2 + 2200^2 &&= 1\ 0121^2 \\
 &1020\ 09879^2 + 222200^2 &&= 10201\ 0121^2 \\
 &10203020\ 09879^2 + 22222200^2 &&= 102030201\ 0121^2 \\
 &102030403020\ 09879^2 + 2222222200^2 &&= 1020304030201\ 0121^2 \\
 &1020304050403020\ 09879^2 + 222222222200^2 &&= 10203040504030201\ 0121^2 \\
 &10203040506050403020\ 09879^2 + 22222222222200^2 &&= 102030405060504030201\ 0121^2 \\
 &102030405060706050403020\ 09879^2 + 2222222222222200^2 &&= 1020304050607060504030201\ 0121^2 \\
 &1020304050607080706050403020\ 09879^2 + 222222222222222200^2 &&= 10203040506070807060504030201\ 0121^2 \\
 &10203040506070809080706050403020\ 09879^2 + 22222222222222222200^2 &&= 102030405060708090807060504030201\ 0121^2
 \end{aligned}$$

(3.11)

$$\begin{aligned}
& 09856^2 + 2400^2 &= & \mathbf{1\ 0144^2} \\
& \mathbf{1020\ 09856^2 + 242400^2} &= & \mathbf{10201\ 0144^2} \\
& \mathbf{10203020\ 09856^2 + 24242400^2} &= & \mathbf{102030201\ 0144^2} \\
& \mathbf{102030403020\ 09856^2 + 2424242400^2} &= & \mathbf{1020304030201\ 0144^2} \\
& \mathbf{1020304050403020\ 09856^2 + 242424242400^2} &= & \mathbf{10203040504030201\ 0144^2} \\
& \mathbf{10203040506050403020\ 09856^2 + 24242424242400^2} &= & \mathbf{102030405060504030201\ 0144^2} \\
& \mathbf{102030405060706050403020\ 09856^2 + 2424242424242400^2} &= & \mathbf{1020304050607060504030201\ 0144^2} \\
& \mathbf{1020304050607080706050403020\ 09856^2 + 242424242424242400^2} &= & \mathbf{10203040506070807060504030201\ 0144^2} \\
& \mathbf{10203040506070809080706050403020\ 09856^2 + 24242424242424242400^2} &= & \mathbf{102030405060708090807060504030201\ 0144^2}
\end{aligned}
\tag{3.12}$$

$$\begin{aligned}
& 09831^2 + 2600^2 &= & \mathbf{1\ 0169^2} \\
& \mathbf{1020\ 09831^2 + 262600^2} &= & \mathbf{10201\ 0169^2} \\
& \mathbf{10203020\ 09831^2 + 26262600^2} &= & \mathbf{102030201\ 0169^2} \\
& \mathbf{102030403020\ 09831^2 + 2626262600^2} &= & \mathbf{1020304030201\ 0169^2} \\
& \mathbf{1020304050403020\ 09831^2 + 262626262600^2} &= & \mathbf{10203040504030201\ 0169^2} \\
& \mathbf{10203040506050403020\ 09831^2 + 26262626262600^2} &= & \mathbf{102030405060504030201\ 0169^2} \\
& \mathbf{102030405060706050403020\ 09831^2 + 2626262626262600^2} &= & \mathbf{1020304050607060504030201\ 0169^2} \\
& \mathbf{1020304050607080706050403020\ 09831^2 + 262626262626262600^2} &= & \mathbf{10203040506070807060504030201\ 0169^2} \\
& \mathbf{10203040506070809080706050403020\ 09831^2 + 26262626262626262600^2} &= & \mathbf{102030405060708090807060504030201\ 0169^2}
\end{aligned}
\tag{3.13}$$

$$\begin{aligned}
& 09804^2 + 2800^2 &= & \mathbf{1\ 0196^2} \\
& \mathbf{1020\ 09804^2 + 282800^2} &= & \mathbf{10201\ 0196^2} \\
& \mathbf{10203020\ 09804^2 + 28282800^2} &= & \mathbf{102030201\ 0196^2} \\
& \mathbf{102030403020\ 09804^2 + 2828282800^2} &= & \mathbf{1020304030201\ 0196^2} \\
& \mathbf{1020304050403020\ 09804^2 + 282828282800^2} &= & \mathbf{10203040504030201\ 0196^2} \\
& \mathbf{10203040506050403020\ 09804^2 + 28282828282800^2} &= & \mathbf{102030405060504030201\ 0196^2} \\
& \mathbf{102030405060706050403020\ 09804^2 + 2828282828282800^2} &= & \mathbf{1020304050607060504030201\ 0196^2} \\
& \mathbf{1020304050607080706050403020\ 09804^2 + 282828282828282800^2} &= & \mathbf{10203040506070807060504030201\ 0196^2} \\
& \mathbf{10203040506070809080706050403020\ 09804^2 + 28282828282828282800^2} &= & \mathbf{102030405060708090807060504030201\ 0196^2}
\end{aligned}
\tag{3.14}$$

$$\begin{aligned}
& 09775^2 + 3000^2 &= 10225^2 \\
& 1020\ 09775^2 + 303000^2 &= 10201\ 0225^2 \\
& 10203020\ 09775^2 + 30303000^2 &= 102030201\ 0225^2 \\
& 102030403020\ 09775^2 + 3030303000^2 &= 1020304030201\ 0225^2 \\
& 1020304050403020\ 09775^2 + 303030303000^2 &= 10203040504030201\ 0225^2 \\
& 10203040506050403020\ 09775^2 + 30303030303000^2 &= 102030405060504030201\ 0225^2 \\
& 102030405060706050403020\ 09775^2 + 3030303030303000^2 &= 1020304050607060504030201\ 0225^2 \\
& 1020304050607080706050403020\ 09775^2 + 303030303030303000^2 &= 10203040506070807060504030201\ 0225^2 \\
& 10203040506070809080706050403020\ 09775^2 + 30303030303030303000^2 &= 102030405060708090807060504030201\ 0225^2
\end{aligned}
\tag{3.15}$$

$$\begin{aligned}
& 09744^2 + 3200^2 &= 10256^2 \\
& 1020\ 09744^2 + 323200^2 &= 10201\ 0256^2 \\
& 10203020\ 09744^2 + 32323200^2 &= 102030201\ 0256^2 \\
& 102030403020\ 09744^2 + 3232323200^2 &= 1020304030201\ 0256^2 \\
& 1020304050403020\ 09744^2 + 323232323200^2 &= 10203040504030201\ 0256^2 \\
& 10203040506050403020\ 09744^2 + 32323232323200^2 &= 102030405060504030201\ 0256^2 \\
& 102030405060706050403020\ 09744^2 + 3232323232323200^2 &= 1020304050607060504030201\ 0256^2 \\
& 1020304050607080706050403020\ 09744^2 + 323232323232323200^2 &= 10203040506070807060504030201\ 0256^2 \\
& 10203040506070809080706050403020\ 09744^2 + 32323232323232323200^2 &= 102030405060708090807060504030201\ 0256^2
\end{aligned}
\tag{3.16}$$

$$\begin{aligned}
& 09711^2 + 3400^2 &= 10289^2 \\
& 1020\ 09711^2 + 343400^2 &= 10201\ 0289^2 \\
& 10203020\ 09711^2 + 34343400^2 &= 102030201\ 0289^2 \\
& 102030403020\ 09711^2 + 3434343400^2 &= 1020304030201\ 0289^2 \\
& 1020304050403020\ 09711^2 + 343434343400^2 &= 10203040504030201\ 0289^2 \\
& 10203040506050403020\ 09711^2 + 34343434343400^2 &= 102030405060504030201\ 0289^2 \\
& 102030405060706050403020\ 09711^2 + 3434343434343400^2 &= 1020304050607060504030201\ 0289^2 \\
& 1020304050607080706050403020\ 09711^2 + 343434343434343400^2 &= 10203040506070807060504030201\ 0289^2 \\
& 10203040506070809080706050403020\ 09711^2 + 34343434343434343400^2 &= 102030405060708090807060504030201\ 0289^2
\end{aligned}
\tag{3.17}$$

$$\begin{aligned}
 &09676^2 + 3600^2 &&= 10324^2 \\
 &102009676^2 + 363600^2 &&= 102010324^2 \\
 &1020302009676^2 + 36363600^2 &&= 1020302010324^2 \\
 &10203040302009676^2 + 3636363600^2 &&= 10203040302010324^2 \\
 &102030405040302009676^2 + 363636363600^2 &&= 102030405040302010324^2 \\
 &1020304050605040302009676^2 + 36363636363600^2 &&= 1020304050605040302010324^2 \\
 &10203040506070605040302009676^2 + 3636363636363600^2 &&= 10203040506070605040302010324^2 \\
 &102030405060708070605040302009676^2 + 363636363636363600^2 &&= 102030405060708070605040302010324^2 \\
 &1020304050607080908070605040302009676^2 + 36363636363636363600^2 &&= 1020304050607080908070605040302010324^2
 \end{aligned}
 \tag{3.18}$$

$$\begin{aligned}
 &09639^2 + 3800^2 &&= 10361^2 \\
 &102009639^2 + 383800^2 &&= 102010361^2 \\
 &1020302009639^2 + 38383800^2 &&= 1020302010361^2 \\
 &10203040302009639^2 + 3838383800^2 &&= 10203040302010361^2 \\
 &102030405040302009639^2 + 383838383800^2 &&= 102030405040302010361^2 \\
 &1020304050605040302009639^2 + 38383838383800^2 &&= 1020304050605040302010361^2 \\
 &10203040506070605040302009639^2 + 3838383838383800^2 &&= 10203040506070605040302010361^2 \\
 &102030405060708070605040302009639^2 + 383838383838383800^2 &&= 102030405060708070605040302010361^2 \\
 &1020304050607080908070605040302009639^2 + 38383838383838383800^2 &&= 1020304050607080908070605040302010361^2
 \end{aligned}
 \tag{3.19}$$

**3.1.2 For  $n = 20, 21, 23, \dots, 97, 98, 99$  :**

Let's consider

$$m = 100, 10100, 1010100, 101010100, 10101010100, 1010101010100, 101010101010100, 10101010101010100$$

in (1.1), then for each value of  $n = 20, 21, 23, \dots, 97, 98, 99$ ; there are 80 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 3.1.1.

$$\begin{aligned}
 &09600^2 + 4000^2 &&= 10400^2 \\
 &102009600^2 + 404000^2 &&= 102010400^2 \\
 &1020302009600^2 + 40404000^2 &&= 1020302010400^2 \\
 &10203040302009600^2 + 4040404000^2 &&= 10203040302010400^2
 \end{aligned}
 \tag{3.20}$$

$$\begin{aligned}
 &09559^2 + 4200^2 &&= 10441^2 \\
 &102009559^2 + 424200^2 &&= 102010441^2 \\
 &1020302009559^2 + 42424200^2 &&= 1020302010441^2 \\
 &10203040302009559^2 + 4242424200^2 &&= 10203040302010441^2
 \end{aligned}
 \tag{3.21}$$

$$\begin{aligned}
09516^2 + 4400^2 &= \mathbf{1\ 0484^2} \\
1020\ 09516^2 + 444400^2 &= \mathbf{10201\ 0484^2} \\
10203020\ 09516^2 + 44444400^2 &= \mathbf{102030201\ 0484^2} \\
102030403020\ 09516^2 + 4444444400^2 &= \mathbf{1020304030201\ 0484^2} \\
\end{aligned}
\tag{3.22}$$

$$\begin{aligned}
09471^2 + 4600^2 &= \mathbf{1\ 0529^2} \\
1020\ 09471^2 + 464600^2 &= \mathbf{10201\ 0529^2} \\
10203020\ 09471^2 + 46464600^2 &= \mathbf{102030201\ 0529^2} \\
102030403020\ 09471^2 + 4646464600^2 &= \mathbf{1020304030201\ 0529^2} \\
\end{aligned}
\tag{3.23}$$

$$\begin{aligned}
09424^2 + 4800^2 &= \mathbf{1\ 0576^2} \\
1020\ 09424^2 + 484800^2 &= \mathbf{10201\ 0576^2} \\
10203020\ 09424^2 + 48484800^2 &= \mathbf{102030201\ 0576^2} \\
102030403020\ 09424^2 + 4848484800^2 &= \mathbf{1020304030201\ 0576^2} \\
\end{aligned}
\tag{3.24}$$

$$\begin{aligned}
09375^2 + 5000^2 &= \mathbf{1\ 0625^2} \\
1020\ 09375^2 + 505000^2 &= \mathbf{10201\ 0625^2} \\
10203020\ 09375^2 + 50505000^2 &= \mathbf{102030201\ 0625^2} \\
102030403020\ 09375^2 + 5050505000^2 &= \mathbf{1020304030201\ 0625^2} \\
\end{aligned}
\tag{3.25}$$

$$\begin{aligned}
09324^2 + 5200^2 &= \mathbf{1\ 0676^2} \\
1020\ 09324^2 + 525200^2 &= \mathbf{10201\ 0676^2} \\
10203020\ 09324^2 + 52525200^2 &= \mathbf{102030201\ 0676^2} \\
102030403020\ 09324^2 + 5252525200^2 &= \mathbf{1020304030201\ 0676^2} \\
\end{aligned}
\tag{3.26}$$

$$\begin{aligned}
09271^2 + 5400^2 &= \mathbf{1\ 0729^2} \\
1020\ 09271^2 + 545400^2 &= \mathbf{10201\ 0729^2} \\
10203020\ 09271^2 + 54545400^2 &= \mathbf{102030201\ 0729^2} \\
102030403020\ 09271^2 + 5454545400^2 &= \mathbf{1020304030201\ 0729^2} \\
\end{aligned}
\tag{3.27}$$

$$\begin{aligned}
09216^2 + 5600^2 &= \mathbf{1\ 0784^2} \\
1020\ 09216^2 + 565600^2 &= \mathbf{10201\ 0784^2} \\
10203020\ 09216^2 + 56565600^2 &= \mathbf{102030201\ 0784^2} \\
102030403020\ 09216^2 + 5656565600^2 &= \mathbf{1020304030201\ 0784^2} \\
\end{aligned}
\tag{3.28}$$

$$\begin{aligned}
09159^2 + 5800^2 &= \mathbf{1\ 0841^2} \\
1020\ 09159^2 + 585800^2 &= \mathbf{10201\ 0841^2} \\
10203020\ 09159^2 + 58585800^2 &= \mathbf{102030201\ 0841^2} \\
102030403020\ 09159^2 + 5858585800^2 &= \mathbf{1020304030201\ 0841^2} \\
\end{aligned}
\tag{3.29}$$

$$\begin{aligned}
09100^2 + 6000^2 &= \mathbf{1\ 0900^2} \\
1020\ 09100^2 + 606000^2 &= \mathbf{10201\ 0900^2} \\
10203020\ 09100^2 + 60606000^2 &= \mathbf{102030201\ 0900^2} \\
102030403020\ 09100^2 + 6060606000^2 &= \mathbf{1020304030201\ 0900^2} \\
\end{aligned}
\tag{3.30}$$

$$\begin{aligned}
09039^2 + 6200^2 &= \mathbf{1\ 0961^2} \\
1020\ 09039^2 + 626200^2 &= \mathbf{10201\ 0961^2} \\
10203020\ 09039^2 + 62626200^2 &= \mathbf{102030201\ 0961^2} \\
102030403020\ 09039^2 + 6262626200^2 &= \mathbf{1020304030201\ 0961^2} \\
\end{aligned}
\tag{3.31}$$

$$\begin{aligned}
08976^2 + 6400^2 &= \mathbf{1\ 1024^2} \\
1020\ 08976^2 + 646400^2 &= \mathbf{10201\ 1024^2} \\
10203020\ 08976^2 + 64646400^2 &= \mathbf{102030201\ 1024^2} \\
102030403020\ 08976^2 + 6464646400^2 &= \mathbf{1020304030201\ 1024^2} \\
\end{aligned}
\tag{3.32}$$

$$\begin{aligned}
08911^2 + 6600^2 &= \mathbf{1\ 1089^2} \\
1020\ 08911^2 + 666600^2 &= \mathbf{10201\ 1089^2} \\
10203020\ 08911^2 + 66666600^2 &= \mathbf{102030201\ 1089^2} \\
102030403020\ 08911^2 + 6666666600^2 &= \mathbf{1020304030201\ 1089^2} \\
\end{aligned}
\tag{3.33}$$

$$\begin{aligned}
08844^2 + 6800^2 &= \mathbf{1\ 1156^2} \\
1020\ 08844^2 + 686800^2 &= \mathbf{10201\ 1156^2} \\
10203020\ 08844^2 + 68686800^2 &= \mathbf{102030201\ 1156^2} \\
102030403020\ 08844^2 + 6868686800^2 &= \mathbf{1020304030201\ 1156^2} \\
\end{aligned}
\tag{3.34}$$

$$\begin{aligned}
08775^2 + 7000^2 &= \mathbf{1\ 1225^2} \\
1020\ 08775^2 + 707000^2 &= \mathbf{10201\ 1225^2} \\
10203020\ 08775^2 + 70707000^2 &= \mathbf{102030201\ 1225^2} \\
102030403020\ 08775^2 + 7070707000^2 &= \mathbf{1020304030201\ 1225^2} \\
\end{aligned}
\tag{3.35}$$

$$\begin{aligned}
08704^2 + 7200^2 &= \mathbf{1\ 1296^2} \\
1020\ 08704^2 + 727200^2 &= \mathbf{10201\ 1296^2} \\
10203020\ 08704^2 + 72727200^2 &= \mathbf{102030201\ 1296^2} \\
102030403020\ 08704^2 + 7272727200^2 &= \mathbf{1020304030201\ 1296^2} \\
\end{aligned}
\tag{3.36}$$

$$\begin{aligned}
08631^2 + 7400^2 &= \mathbf{1\ 1369^2} \\
\mathbf{1020\ 08631^2 + 747400^2} &= \mathbf{10201\ 1369^2} \\
\mathbf{10203020\ 08631^2 + 74747400^2} &= \mathbf{102030201\ 1369^2} \\
\mathbf{102030403020\ 08631^2 + 7474747400^2} &= \mathbf{1020304030201\ 1369^2} \\
&\quad (3.37)
\end{aligned}$$

$$\begin{aligned}
08556^2 + 7600^2 &= \mathbf{1\ 1444^2} \\
\mathbf{1020\ 08556^2 + 767600^2} &= \mathbf{10201\ 1444^2} \\
\mathbf{10203020\ 08556^2 + 76767600^2} &= \mathbf{102030201\ 1444^2} \\
\mathbf{102030403020\ 08556^2 + 7676767600^2} &= \mathbf{1020304030201\ 1444^2} \\
&\quad (3.38)
\end{aligned}$$

$$\begin{aligned}
08479^2 + 7800^2 &= \mathbf{1\ 1521^2} \\
\mathbf{1020\ 08479^2 + 787800^2} &= \mathbf{10201\ 1521^2} \\
\mathbf{10203020\ 08479^2 + 78787800^2} &= \mathbf{102030201\ 1521^2} \\
\mathbf{102030403020\ 08479^2 + 7878787800^2} &= \mathbf{1020304030201\ 1521^2} \\
&\quad (3.39)
\end{aligned}$$

$$\begin{aligned}
08400^2 + 8000^2 &= \mathbf{1\ 1600^2} \\
\mathbf{1020\ 08400^2 + 808000^2} &= \mathbf{10201\ 1600^2} \\
\mathbf{10203020\ 08400^2 + 80808000^2} &= \mathbf{102030201\ 1600^2} \\
\mathbf{102030403020\ 08400^2 + 8080808000^2} &= \mathbf{1020304030201\ 1600^2} \\
&\quad (3.40)
\end{aligned}$$

$$\begin{aligned}
08319^2 + 8200^2 &= \mathbf{1\ 1681^2} \\
\mathbf{1020\ 08319^2 + 828200^2} &= \mathbf{10201\ 1681^2} \\
\mathbf{10203020\ 08319^2 + 82828200^2} &= \mathbf{102030201\ 1681^2} \\
\mathbf{102030403020\ 08319^2 + 8282828200^2} &= \mathbf{1020304030201\ 1681^2} \\
&\quad (3.41)
\end{aligned}$$

$$\begin{aligned}
08236^2 + 8400^2 &= \mathbf{1\ 1764^2} \\
\mathbf{1020\ 08236^2 + 848400^2} &= \mathbf{10201\ 1764^2} \\
\mathbf{10203020\ 08236^2 + 84848400^2} &= \mathbf{102030201\ 1764^2} \\
\mathbf{102030403020\ 08236^2 + 8484848400^2} &= \mathbf{1020304030201\ 1764^2} \\
&\quad (3.42)
\end{aligned}$$

$$\begin{aligned}
08151^2 + 8600^2 &= \mathbf{1\ 1849^2} \\
\mathbf{1020\ 08151^2 + 868600^2} &= \mathbf{10201\ 1849^2} \\
\mathbf{10203020\ 08151^2 + 86868600^2} &= \mathbf{102030201\ 1849^2} \\
\mathbf{102030403020\ 08151^2 + 8686868600^2} &= \mathbf{1020304030201\ 1849^2} \\
&\quad (3.43)
\end{aligned}$$

$$\begin{aligned}
08064^2 + 8800^2 &= \mathbf{1\ 1936^2} \\
\mathbf{1020\ 08064^2 + 888800^2} &= \mathbf{10201\ 1936^2} \\
\mathbf{10203020\ 08064^2 + 88888800^2} &= \mathbf{102030201\ 1936^2} \\
\mathbf{102030403020\ 08064^2 + 8888888800^2} &= \mathbf{1020304030201\ 1936^2} \\
&\quad (3.44)
\end{aligned}$$

$$\begin{aligned}
07975^2 + 9000^2 &= \mathbf{1\ 2025^2} \\
\mathbf{1020\ 07975^2 + 909000^2} &= \mathbf{10201\ 2025^2} \\
\mathbf{10203020\ 07975^2 + 90909000^2} &= \mathbf{102030201\ 2025^2} \\
\mathbf{102030403020\ 07975^2 + 9090909000^2} &= \mathbf{1020304030201\ 2025^2} \\
&\quad (3.45)
\end{aligned}$$

$$\begin{aligned}
07884^2 + 9200^2 &= \mathbf{1\ 2116^2} \\
\mathbf{1020\ 07884^2 + 929200^2} &= \mathbf{10201\ 2116^2} \\
\mathbf{10203020\ 07884^2 + 92929200^2} &= \mathbf{102030201\ 2116^2} \\
\mathbf{102030403020\ 07884^2 + 9292929200^2} &= \mathbf{1020304030201\ 2116^2} \\
&\quad (3.46)
\end{aligned}$$

$$\begin{aligned}
07791^2 + 9400^2 &= \mathbf{1\ 2209^2} \\
\mathbf{1020\ 07791^2 + 949400^2} &= \mathbf{10201\ 2209^2} \\
\mathbf{10203020\ 07791^2 + 94949400^2} &= \mathbf{102030201\ 2209^2} \\
\mathbf{102030403020\ 07791^2 + 9494949400^2} &= \mathbf{1020304030201\ 2209^2} \\
&\quad (3.47)
\end{aligned}$$

$$\begin{aligned}
07696^2 + 9600^2 &= \mathbf{1\ 2304^2} \\
\mathbf{1020\ 07696^2 + 969600^2} &= \mathbf{10201\ 2304^2} \\
\mathbf{10203020\ 07696^2 + 96969600^2} &= \mathbf{102030201\ 2304^2} \\
\mathbf{102030403020\ 07696^2 + 9696969600^2} &= \mathbf{1020304030201\ 2304^2} \\
&\quad (3.48)
\end{aligned}$$

$$\begin{aligned}
07599^2 + 9800^2 &= \mathbf{1\ 2401^2} \\
\mathbf{1020\ 07599^2 + 989800^2} &= \mathbf{10201\ 2401^2} \\
\mathbf{10203020\ 07599^2 + 98989800^2} &= \mathbf{102030201\ 2401^2} \\
\mathbf{102030403020\ 07599^2 + 9898989800^2} &= \mathbf{1020304030201\ 2401^2} \\
&\quad (3.49)
\end{aligned}$$

$$\begin{aligned}
07500^2 + 10000^2 &= \mathbf{1\ 2500^2} \\
\mathbf{1020\ 07500^2 + 1010000^2} &= \mathbf{10201\ 2500^2} \\
\mathbf{10203020\ 07500^2 + 101010000^2} &= \mathbf{102030201\ 2500^2} \\
\mathbf{102030403020\ 07500^2 + 10101010000^2} &= \mathbf{1020304030201\ 2500^2} \\
&\quad (3.50)
\end{aligned}$$

$$\begin{aligned}
07399^2 + 10200^2 &= \mathbf{1\ 2601^2} \\
\mathbf{1020\ 07399^2 + 1030200^2} &= \mathbf{10201\ 2601^2} \\
\mathbf{10203020\ 07399^2 + 103030200^2} &= \mathbf{102030201\ 2601^2} \\
\mathbf{102030403020\ 07399^2 + 10303030200^2} &= \mathbf{1020304030201\ 2601^2} \\
&\quad (3.51)
\end{aligned}$$

$$\begin{aligned}
07296^2 + 10400^2 &= 12704^2 \\
102007296^2 + 1050400^2 &= 102012704^2 \\
1020302007296^2 + 105050400^2 &= 1020302012704^2 \\
10203040302007296^2 + 10505050400^2 &= 10203040302012704^2 \\
&\quad (3.52)
\end{aligned}$$

$$\begin{aligned}
07191^2 + 10600^2 &= 12809^2 \\
102007191^2 + 1070600^2 &= 102012809^2 \\
1020302007191^2 + 107070600^2 &= 1020302012809^2 \\
10203040302007191^2 + 10707070600^2 &= 10203040302012809^2 \\
&\quad (3.53)
\end{aligned}$$

$$\begin{aligned}
07084^2 + 10800^2 &= 12916^2 \\
102007084^2 + 1090800^2 &= 102012916^2 \\
1020302007084^2 + 109090800^2 &= 1020302012916^2 \\
10203040302007084^2 + 10909090800^2 &= 10203040302012916^2 \\
&\quad (3.54)
\end{aligned}$$

$$\begin{aligned}
06975^2 + 11000^2 &= 13025^2 \\
102006975^2 + 1111000^2 &= 102013025^2 \\
1020302006975^2 + 111111000^2 &= 1020302013025^2 \\
10203040302006975^2 + 11111111000^2 &= 10203040302013025^2 \\
&\quad (3.55)
\end{aligned}$$

$$\begin{aligned}
06864^2 + 11200^2 &= 13136^2 \\
102006864^2 + 1131200^2 &= 102013136^2 \\
1020302006864^2 + 113131200^2 &= 1020302013136^2 \\
10203040302006864^2 + 11313131200^2 &= 10203040302013136^2 \\
&\quad (3.56)
\end{aligned}$$

$$\begin{aligned}
06751^2 + 11400^2 &= 13249^2 \\
102006751^2 + 1151400^2 &= 102013249^2 \\
1020302006751^2 + 115151400^2 &= 1020302013249^2 \\
10203040302006751^2 + 11515151400^2 &= 10203040302013249^2 \\
&\quad (3.57)
\end{aligned}$$

$$\begin{aligned}
06636^2 + 11600^2 &= 13364^2 \\
102006636^2 + 1171600^2 &= 102013364^2 \\
1020302006636^2 + 117171600^2 &= 1020302013364^2 \\
10203040302006636^2 + 11717171600^2 &= 10203040302013364^2 \\
&\quad (3.58)
\end{aligned}$$

$$\begin{aligned}
06519^2 + 11800^2 &= 13481^2 \\
102006519^2 + 1191800^2 &= 102013481^2 \\
1020302006519^2 + 119191800^2 &= 1020302013481^2 \\
10203040302006519^2 + 11919191800^2 &= 10203040302013481^2 \\
&\quad (3.59)
\end{aligned}$$

$$\begin{aligned}
06400^2 + 12000^2 &= 13600^2 \\
102006400^2 + 1212000^2 &= 102013600^2 \\
1020302006400^2 + 121212000^2 &= 1020302013600^2 \\
10203040302006400^2 + 12121212000^2 &= 10203040302013600^2 \\
&\quad (3.60)
\end{aligned}$$

$$\begin{aligned}
06279^2 + 12200^2 &= 13721^2 \\
102006279^2 + 1232200^2 &= 102013721^2 \\
1020302006279^2 + 123232200^2 &= 1020302013721^2 \\
10203040302006279^2 + 12323232200^2 &= 10203040302013721^2 \\
&\quad (3.61)
\end{aligned}$$

$$\begin{aligned}
06156^2 + 12400^2 &= 13844^2 \\
102006156^2 + 1252400^2 &= 102013844^2 \\
1020302006156^2 + 125252400^2 &= 1020302013844^2 \\
10203040302006156^2 + 12525252400^2 &= 10203040302013844^2 \\
&\quad (3.62)
\end{aligned}$$

$$\begin{aligned}
06031^2 + 12600^2 &= 13969^2 \\
102006031^2 + 1272600^2 &= 102013969^2 \\
1020302006031^2 + 127272600^2 &= 1020302013969^2 \\
10203040302006031^2 + 12727272600^2 &= 10203040302013969^2 \\
&\quad (3.63)
\end{aligned}$$

$$\begin{aligned}
05904^2 + 12800^2 &= 14096^2 \\
102005904^2 + 1292800^2 &= 102014096^2 \\
1020302005904^2 + 129292800^2 &= 1020302014096^2 \\
10203040302005904^2 + 12929292800^2 &= 10203040302014096^2 \\
&\quad (3.64)
\end{aligned}$$

$$\begin{aligned}
05775^2 + 13000^2 &= 14225^2 \\
102005775^2 + 1313000^2 &= 102014225^2 \\
1020302005775^2 + 131313000^2 &= 1020302014225^2 \\
10203040302005775^2 + 13131313000^2 &= 10203040302014225^2 \\
&\quad (3.65)
\end{aligned}$$

$$\begin{aligned}
05644^2 + 13200^2 &= 14356^2 \\
102005644^2 + 1333200^2 &= 102014356^2 \\
1020302005644^2 + 133333200^2 &= 1020302014356^2 \\
10203040302005644^2 + 13333333200^2 &= 10203040302014356^2 \\
&\quad (3.66)
\end{aligned}$$



$$\begin{aligned}
05511^2 + 13400^2 &= 14489^2 \\
102005511^2 + 1353400^2 &= 102014489^2 \\
1020302005511^2 + 135353400^2 &= 1020302014489^2 \\
10203040302005511^2 + 13535353400^2 &= 10203040302014489^2 \\
\end{aligned}
\tag{3.67}$$

$$\begin{aligned}
05376^2 + 13600^2 &= 14624^2 \\
102005376^2 + 1373600^2 &= 102014624^2 \\
1020302005376^2 + 137373600^2 &= 1020302014624^2 \\
10203040302005376^2 + 13737373600^2 &= 10203040302014624^2 \\
\end{aligned}
\tag{3.68}$$

$$\begin{aligned}
05239^2 + 13800^2 &= 14761^2 \\
102005239^2 + 1393800^2 &= 102014761^2 \\
1020302005239^2 + 139393800^2 &= 1020302014761^2 \\
10203040302005239^2 + 13939393800^2 &= 10203040302014761^2 \\
\end{aligned}
\tag{3.69}$$

$$\begin{aligned}
05100^2 + 14000^2 &= 14900^2 \\
102005100^2 + 1414000^2 &= 102014900^2 \\
1020302005100^2 + 141414000^2 &= 1020302014900^2 \\
10203040302005100^2 + 14141414000^2 &= 10203040302014900^2 \\
\end{aligned}
\tag{3.70}$$

$$\begin{aligned}
04959^2 + 14200^2 &= 15041^2 \\
102004959^2 + 1434200^2 &= 102015041^2 \\
1020302004959^2 + 143434200^2 &= 1020302015041^2 \\
10203040302004959^2 + 14343434200^2 &= 10203040302015041^2 \\
\end{aligned}
\tag{3.71}$$

$$\begin{aligned}
04816^2 + 14400^2 &= 15184^2 \\
102004816^2 + 1454400^2 &= 102015184^2 \\
1020302004816^2 + 145454400^2 &= 1020302015184^2 \\
10203040302004816^2 + 14545454400^2 &= 10203040302015184^2 \\
\end{aligned}
\tag{3.72}$$

$$\begin{aligned}
04671^2 + 14600^2 &= 15329^2 \\
102004671^2 + 1474600^2 &= 102015329^2 \\
1020302004671^2 + 147474600^2 &= 1020302015329^2 \\
10203040302004671^2 + 14747474600^2 &= 10203040302015329^2 \\
\end{aligned}
\tag{3.73}$$

$$\begin{aligned}
04524^2 + 14800^2 &= 15476^2 \\
102004524^2 + 1494800^2 &= 102015476^2 \\
1020302004524^2 + 149494800^2 &= 1020302015476^2 \\
10203040302004524^2 + 14949494800^2 &= 10203040302015476^2 \\
\end{aligned}
\tag{3.74}$$

$$\begin{aligned}
04375^2 + 15000^2 &= 15625^2 \\
102004375^2 + 1515000^2 &= 102015625^2 \\
1020302004375^2 + 151515000^2 &= 1020302015625^2 \\
10203040302004375^2 + 15151515000^2 &= 10203040302015625^2 \\
\end{aligned}
\tag{3.75}$$

$$\begin{aligned}
04224^2 + 15200^2 &= 15776^2 \\
102004224^2 + 1535200^2 &= 102015776^2 \\
1020302004224^2 + 153535200^2 &= 1020302015776^2 \\
10203040302004224^2 + 15353535200^2 &= 10203040302015776^2 \\
\end{aligned}
\tag{3.76}$$

$$\begin{aligned}
04071^2 + 15400^2 &= 15929^2 \\
102004071^2 + 1555400^2 &= 102015929^2 \\
1020302004071^2 + 155555400^2 &= 1020302015929^2 \\
10203040302004071^2 + 1555555400^2 &= 10203040302015929^2 \\
\end{aligned}
\tag{3.77}$$

$$\begin{aligned}
03916^2 + 15600^2 &= 16084^2 \\
102003916^2 + 1575600^2 &= 102016084^2 \\
1020302003916^2 + 157575600^2 &= 1020302016084^2 \\
10203040302003916^2 + 15757575600^2 &= 10203040302016084^2 \\
\end{aligned}
\tag{3.78}$$

$$\begin{aligned}
03759^2 + 15800^2 &= 16241^2 \\
102003759^2 + 1595800^2 &= 102016241^2 \\
1020302003759^2 + 159595800^2 &= 1020302016241^2 \\
10203040302003759^2 + 15959595800^2 &= 10203040302016241^2 \\
\end{aligned}
\tag{3.79}$$

$$\begin{aligned}
03600^2 + 16000^2 &= 16400^2 \\
102003600^2 + 1616000^2 &= 102016400^2 \\
1020302003600^2 + 161616000^2 &= 1020302016400^2 \\
10203040302003600^2 + 16161616000^2 &= 10203040302016400^2 \\
\end{aligned}
\tag{3.80}$$

$$\begin{aligned}
03439^2 + 16200^2 &= 16561^2 \\
102003439^2 + 1636200^2 &= 102016561^2 \\
1020302003439^2 + 163636200^2 &= 1020302016561^2 \\
10203040302003439^2 + 16363636200^2 &= 10203040302016561^2 \\
\end{aligned}
\tag{3.81}$$

$$\begin{aligned}
03276^2 + 16400^2 &= 16724^2 \\
102003276^2 + 1656400^2 &= 102016724^2 \\
1020302003276^2 + 165656400^2 &= 1020302016724^2 \\
10203040302003276^2 + 16565656400^2 &= 10203040302016724^2 \\
&\quad (3.82)
\end{aligned}$$

$$\begin{aligned}
03111^2 + 16600^2 &= 16889^2 \\
102003111^2 + 1676600^2 &= 102016889^2 \\
1020302003111^2 + 167676600^2 &= 1020302016889^2 \\
10203040302003111^2 + 16767676600^2 &= 10203040302016889^2 \\
&\quad (3.83)
\end{aligned}$$

$$\begin{aligned}
02944^2 + 16800^2 &= 17056^2 \\
102002944^2 + 1696800^2 &= 102017056^2 \\
1020302002944^2 + 169696800^2 &= 1020302017056^2 \\
10203040302002944^2 + 16969696800^2 &= 10203040302017056^2 \\
&\quad (3.84)
\end{aligned}$$

$$\begin{aligned}
02775^2 + 17000^2 &= 17225^2 \\
102002775^2 + 1717000^2 &= 102017225^2 \\
1020302002775^2 + 171717000^2 &= 1020302017225^2 \\
10203040302002775^2 + 17171717000^2 &= 10203040302017225^2 \\
&\quad (3.85)
\end{aligned}$$

$$\begin{aligned}
02604^2 + 17200^2 &= 17396^2 \\
102002604^2 + 1737200^2 &= 102017396^2 \\
1020302002604^2 + 173737200^2 &= 1020302017396^2 \\
10203040302002604^2 + 17373737200^2 &= 10203040302017396^2 \\
&\quad (3.86)
\end{aligned}$$

$$\begin{aligned}
02431^2 + 17400^2 &= 17569^2 \\
102002431^2 + 1757400^2 &= 102017569^2 \\
1020302002431^2 + 175757400^2 &= 1020302017569^2 \\
10203040302002431^2 + 17575757400^2 &= 10203040302017569^2 \\
&\quad (3.87)
\end{aligned}$$

$$\begin{aligned}
02256^2 + 17600^2 &= 17744^2 \\
102002256^2 + 1777600^2 &= 102017744^2 \\
1020302002256^2 + 177777600^2 &= 1020302017744^2 \\
10203040302002256^2 + 17777777600^2 &= 10203040302017744^2 \\
&\quad (3.88)
\end{aligned}$$

$$\begin{aligned}
02079^2 + 17800^2 &= 17921^2 \\
102002079^2 + 1797800^2 &= 102017921^2 \\
1020302002079^2 + 179797800^2 &= 1020302017921^2 \\
10203040302002079^2 + 17979797800^2 &= 10203040302017921^2 \\
&\quad (3.89)
\end{aligned}$$

$$\begin{aligned}
01900^2 + 18000^2 &= 18100^2 \\
102001900^2 + 1818000^2 &= 102018100^2 \\
1020302001900^2 + 181818000^2 &= 1020302018100^2 \\
10203040302001900^2 + 18181818000^2 &= 10203040302018100^2 \\
&\quad (3.90)
\end{aligned}$$

$$\begin{aligned}
01719^2 + 18200^2 &= 18281^2 \\
102001719^2 + 1838200^2 &= 102018281^2 \\
1020302001719^2 + 183838200^2 &= 1020302018281^2 \\
10203040302001719^2 + 18383838200^2 &= 10203040302018281^2 \\
&\quad (3.91)
\end{aligned}$$

$$\begin{aligned}
01536^2 + 18400^2 &= 18464^2 \\
102001536^2 + 1858400^2 &= 102018464^2 \\
1020302001536^2 + 185858400^2 &= 1020302018464^2 \\
10203040302001536^2 + 18585858400^2 &= 10203040302018464^2 \\
&\quad (3.92)
\end{aligned}$$

$$\begin{aligned}
01351^2 + 18600^2 &= 18649^2 \\
102001351^2 + 1878600^2 &= 102018649^2 \\
1020302001351^2 + 187878600^2 &= 1020302018649^2 \\
10203040302001351^2 + 18787878600^2 &= 10203040302018649^2 \\
&\quad (3.93)
\end{aligned}$$

$$\begin{aligned}
01164^2 + 18800^2 &= 18836^2 \\
102001164^2 + 1898800^2 &= 102018836^2 \\
1020302001164^2 + 189898800^2 &= 1020302018836^2 \\
10203040302001164^2 + 18989898800^2 &= 10203040302018836^2 \\
&\quad (3.94)
\end{aligned}$$

$$\begin{aligned}
00975^2 + 19000^2 &= 19025^2 \\
102000975^2 + 1919000^2 &= 102019025^2 \\
1020302000975^2 + 191919000^2 &= 1020302019025^2 \\
10203040302000975^2 + 19191919000^2 &= 10203040302019025^2 \\
&\quad (3.95)
\end{aligned}$$

$$\begin{aligned}
00784^2 + 19200^2 &= 19216^2 \\
102000784^2 + 1939200^2 &= 102019216^2 \\
1020302000784^2 + 193939200^2 &= 1020302019216^2 \\
10203040302000784^2 + 19393939200^2 &= 10203040302019216^2 \\
&\quad (3.96)
\end{aligned}$$

$$\begin{aligned}
 &00591^2 + 19400^2 = 19409^2 \\
 &102000591^2 + 1959400^2 = 102019409^2 \\
 &1020302000591^2 + 195959400^2 = 1020302019409^2 \\
 &10203040302000591^2 + 19595959400^2 = 10203040302019409^2 \quad (3.97) \\
 &00396^2 + 19600^2 = 19604^2 \\
 &102000396^2 + 1979600^2 = 102019604^2 \\
 &1020302000396^2 + 197979600^2 = 1020302019604^2 \\
 &10203040302000396^2 + 19797979600^2 = 10203040302019604^2 \quad (3.98) \\
 &00199^2 + 19800^2 = 19801^2 \\
 &102000199^2 + 1999800^2 = 102019801^2 \\
 &1020302000199^2 + 19999800^2 = 1020302019801^2 \\
 &10203040302000199^2 + 1999999800^2 = 10203040302019801^2 \quad (3.99)
 \end{aligned}$$

Based on above 99 results given in subsections 3.1.1 and 3.1.2, below are some remarks:

**Remark 2.** (i) The *first line* of first pattern (3.1) is the *second line* as given in pattern (1.2), i.e.,

$$9999^2 + 200^2 = 10001^2.$$

(ii) There is symmetry in squared value for last two digits of each Example:

$$\begin{aligned}
 \text{Example (3.1)} &\Rightarrow 0001 = 1^2 \\
 \text{Example (3.2)} &\Rightarrow 0004 = 2^2 \\
 \text{Example (3.3)} &\Rightarrow 0009 = 3^2 \\
 \text{Example (3.4)} &\Rightarrow 0016 = 4^2 \\
 &\dots \dots \quad \dots \dots \\
 &\dots \dots \quad \dots \dots \\
 \text{Example (3.97)} &\Rightarrow 9409 = 97^2 \\
 \text{Example (3.98)} &\Rightarrow 9604 = 98^2 \\
 \text{Example (3.99)} &\Rightarrow 9801 = 99^2.
 \end{aligned}$$

(iii) The sum of the *last four digits* of first and third members of each line is same, i.e.,

$$\begin{aligned}
 \text{Example (3.1)} &\Rightarrow 9999 + 0001 = 10000 \\
 \text{Example (3.2)} &\Rightarrow 9996 + 0004 = 10000 \\
 \text{Example (3.3)} &\Rightarrow 9991 + 0009 = 10000 \\
 \text{Example (3.4)} &\Rightarrow 9984 + 0016 = 10000 \\
 &\dots \dots \quad \dots \dots \dots \\
 &\dots \dots \quad \dots \dots \dots \\
 \text{Example (3.97)} &\Rightarrow 0591 + 9409 = 10000 \\
 \text{Example (3.98)} &\Rightarrow 0396 + 9604 = 10000 \\
 \text{Example (3.99)} &\Rightarrow 0199 + 9801 = 10000
 \end{aligned}$$

(iv) In many cases, the second term in first line is out of pattern, but the continuations is well patterned. From n=20 to 99, we have written only first four lines. The rest 5 lines follows on similar way as of n=1 to 19 given in subsection 3.1.

## 4 Third Group

Below are 999 examples of **pattern in Pythagorean triples** with 9 digits from 1 to 9 written as **palindromic-type**, where the **first line** of first pattern is the same as **third line** of example (1.2). First 19 examples are complete. Then from 20 to 999, the results are written in reduced form. These can be completed on similar lines.

### 4.1 For $n = 1, 2, 3, \dots, 97, 98, 99$ :

This subsection is divided in two parts. The first part give first 19 results give complete patterns. The other 80 are with first four lines.

#### 4.1.1 For $n = 1, 2, 3, \dots, 17, 18, 19$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000$$

in (1.1), then for each value of  $n = 1, 2, 3, \dots, 17, 18, 19$ ; there are 19 *palindromic-type pandigital Pythagorean patterns* given below:

$$\begin{aligned}
 &0999999^2 + 2000^2 &&= 1\ 000001^2 \\
 &1020\ 0999999^2 + 202000^2 &&= 10201\ 000001^2 \\
 &10203020\ 0999999^2 + 20202000^2 &&= 102030201\ 000001^2 \\
 &102030403020\ 0999999^2 + 2020202000^2 &&= 1020304030201\ 000001^2 \\
 &1020304050403020\ 0999999^2 + 202020202000^2 &&= 10203040504030201\ 000001^2 \\
 &10203040506050403020\ 0999999^2 + 20202020202000^2 &&= 102030405060504030201\ 000001^2 \\
 &102030405060706050403020\ 0999999^2 + 2020202020202000^2 &&= 1020304050607060504030201\ 000001^2 \\
 &1020304050607080706050403020\ 0999999^2 + 202020202020202000^2 &&= 10203040506070807060504030201\ 000001^2 \\
 &10203040506070809080706050403020\ 0999999^2 + 20202020202020202000^2 &&= 102030405060708090807060504030201\ 000001^2
 \end{aligned}
 \tag{4.1}$$

$$\begin{aligned}
 &0999996^2 + 4000^2 &&= 1\ 000004^2 \\
 &1020\ 0999996^2 + 404000^2 &&= 10201\ 000004^2 \\
 &10203020\ 0999996^2 + 40404000^2 &&= 102030201\ 000004^2 \\
 &102030403020\ 0999996^2 + 4040404000^2 &&= 1020304030201\ 000004^2 \\
 &1020304050403020\ 0999996^2 + 404040404000^2 &&= 10203040504030201\ 000004^2 \\
 &10203040506050403020\ 0999996^2 + 40404040404000^2 &&= 102030405060504030201\ 000004^2 \\
 &102030405060706050403020\ 0999996^2 + 4040404040404000^2 &&= 1020304050607060504030201\ 000004^2 \\
 &1020304050607080706050403020\ 0999996^2 + 404040404040404000^2 &&= 10203040506070807060504030201\ 000004^2 \\
 &10203040506070809080706050403020\ 0999996^2 + 40404040404040404000^2 &&= 102030405060708090807060504030201\ 000004^2
 \end{aligned}
 \tag{4.2}$$

$$\begin{aligned}
& 0999991^2 + 6000^2 &= & \mathbf{1\ 000009^2} \\
& \mathbf{1020\ 0999991^2 + 606000^2} &= & \mathbf{10201\ 000009^2} \\
& \mathbf{10203020\ 0999991^2 + 60606000^2} &= & \mathbf{102030201\ 000009^2} \\
& \mathbf{102030403020\ 0999991^2 + 6060606000^2} &= & \mathbf{1020304030201\ 000009^2} \\
& \mathbf{1020304050403020\ 0999991^2 + 606060606000^2} &= & \mathbf{10203040504030201\ 000009^2} \\
& \mathbf{10203040506050403020\ 0999991^2 + 60606060606000^2} &= & \mathbf{102030405060504030201\ 000009^2} \\
& \mathbf{102030405060706050403020\ 0999991^2 + 6060606060606000^2} &= & \mathbf{1020304050607060504030201\ 000009^2} \\
& \mathbf{1020304050607080706050403020\ 0999991^2 + 606060606060606000^2} &= & \mathbf{10203040506070807060504030201\ 000009^2} \\
& \mathbf{10203040506070809080706050403020\ 0999991^2 + 60606060606060606000^2} &= & \mathbf{102030405060708090807060504030201\ 000009^2}
\end{aligned}
\tag{4.3}$$

$$\begin{aligned}
& 0999984^2 + 8000^2 &= & \mathbf{1\ 000016^2} \\
& \mathbf{1020\ 0999984^2 + 808000^2} &= & \mathbf{10201\ 000016^2} \\
& \mathbf{10203020\ 0999984^2 + 80808000^2} &= & \mathbf{102030201\ 000016^2} \\
& \mathbf{102030403020\ 0999984^2 + 8080808000^2} &= & \mathbf{1020304030201\ 000016^2} \\
& \mathbf{1020304050403020\ 0999984^2 + 808080808000^2} &= & \mathbf{10203040504030201\ 000016^2} \\
& \mathbf{10203040506050403020\ 0999984^2 + 80808080808000^2} &= & \mathbf{102030405060504030201\ 000016^2} \\
& \mathbf{102030405060706050403020\ 0999984^2 + 8080808080808000^2} &= & \mathbf{1020304050607060504030201\ 000016^2} \\
& \mathbf{1020304050607080706050403020\ 0999984^2 + 808080808080808000^2} &= & \mathbf{10203040506070807060504030201\ 000016^2} \\
& \mathbf{10203040506070809080706050403020\ 0999984^2 + 80808080808080808000^2} &= & \mathbf{102030405060708090807060504030201\ 000016^2}
\end{aligned}
\tag{4.4}$$

$$\begin{aligned}
& 0999975^2 + 10000^2 &= & \mathbf{1\ 000025^2} \\
& \mathbf{1020\ 0999975^2 + 1010000^2} &= & \mathbf{10201\ 000025^2} \\
& \mathbf{10203020\ 0999975^2 + 101010000^2} &= & \mathbf{102030201\ 000025^2} \\
& \mathbf{102030403020\ 0999975^2 + 10101010000^2} &= & \mathbf{1020304030201\ 000025^2} \\
& \mathbf{1020304050403020\ 0999975^2 + 1010101010000^2} &= & \mathbf{10203040504030201\ 000025^2} \\
& \mathbf{10203040506050403020\ 0999975^2 + 101010101010000^2} &= & \mathbf{102030405060504030201\ 000025^2} \\
& \mathbf{102030405060706050403020\ 0999975^2 + 10101010101010000^2} &= & \mathbf{1020304050607060504030201\ 000025^2} \\
& \mathbf{1020304050607080706050403020\ 0999975^2 + 1010101010101010000^2} &= & \mathbf{10203040506070807060504030201\ 000025^2} \\
& \mathbf{10203040506070809080706050403020\ 0999975^2 + 101010101010101010000^2} &= & \mathbf{102030405060708090807060504030201\ 000025^2}
\end{aligned}
\tag{4.5}$$

$$\begin{aligned}
& 0999964^2 + 12000^2 &= & \mathbf{1\ 000036^2} \\
& \mathbf{1020\ 0999964^2 + 1212000^2} &= & \mathbf{10201\ 000036^2} \\
& \mathbf{10203020\ 0999964^2 + 121212000^2} &= & \mathbf{102030201\ 000036^2} \\
& \mathbf{102030403020\ 0999964^2 + 12121212000^2} &= & \mathbf{1020304030201\ 000036^2} \\
& \mathbf{1020304050403020\ 0999964^2 + 1212121212000^2} &= & \mathbf{10203040504030201\ 000036^2} \\
& \mathbf{10203040506050403020\ 0999964^2 + 121212121212000^2} &= & \mathbf{102030405060504030201\ 000036^2} \\
& \mathbf{102030405060706050403020\ 0999964^2 + 12121212121212000^2} &= & \mathbf{1020304050607060504030201\ 000036^2} \\
& \mathbf{1020304050607080706050403020\ 0999964^2 + 1212121212121212000^2} &= & \mathbf{10203040506070807060504030201\ 000036^2} \\
& \mathbf{10203040506070809080706050403020\ 0999964^2 + 121212121212121212000^2} &= & \mathbf{102030405060708090807060504030201\ 000036^2}
\end{aligned}
\tag{4.6}$$

$$\begin{aligned}
&0999951^2 + 14000^2 &&= 1\ 000049^2 \\
&1020\ 0999951^2 + 1414000^2 &&= 10201\ 000049^2 \\
&10203020\ 0999951^2 + 141414000^2 &&= 102030201\ 000049^2 \\
&102030403020\ 0999951^2 + 14141414000^2 &&= 1020304030201\ 000049^2 \\
&1020304050403020\ 0999951^2 + 1414141414000^2 &&= 10203040504030201\ 000049^2 \\
&10203040506050403020\ 0999951^2 + 141414141414000^2 &&= 102030405060504030201\ 000049^2 \\
&102030405060706050403020\ 0999951^2 + 14141414141414000^2 &&= 1020304050607060504030201\ 000049^2 \\
&1020304050607080706050403020\ 0999951^2 + 1414141414141414000^2 &&= 10203040506070807060504030201\ 000049^2 \\
&10203040506070809080706050403020\ 0999951^2 + 141414141414141414000^2 &&= 102030405060708090807060504030201\ 000049^2 \\
&&&(4.7)
\end{aligned}$$

$$\begin{aligned}
&0999936^2 + 16000^2 &&= 1\ 000064^2 \\
&1020\ 0999936^2 + 1616000^2 &&= 10201\ 000064^2 \\
&10203020\ 0999936^2 + 161616000^2 &&= 102030201\ 000064^2 \\
&102030403020\ 0999936^2 + 16161616000^2 &&= 1020304030201\ 000064^2 \\
&1020304050403020\ 0999936^2 + 1616161616000^2 &&= 10203040504030201\ 000064^2 \\
&10203040506050403020\ 0999936^2 + 161616161616000^2 &&= 102030405060504030201\ 000064^2 \\
&102030405060706050403020\ 0999936^2 + 16161616161616000^2 &&= 1020304050607060504030201\ 000064^2 \\
&1020304050607080706050403020\ 0999936^2 + 1616161616161616000^2 &&= 10203040506070807060504030201\ 000064^2 \\
&10203040506070809080706050403020\ 0999936^2 + 161616161616161616000^2 &&= 102030405060708090807060504030201\ 000064^2 \\
&&&(4.8)
\end{aligned}$$

$$\begin{aligned}
&0999919^2 + 18000^2 &&= 1\ 000081^2 \\
&1020\ 0999919^2 + 1818000^2 &&= 10201\ 000081^2 \\
&10203020\ 0999919^2 + 181818000^2 &&= 102030201\ 000081^2 \\
&102030403020\ 0999919^2 + 18181818000^2 &&= 1020304030201\ 000081^2 \\
&1020304050403020\ 0999919^2 + 1818181818000^2 &&= 10203040504030201\ 000081^2 \\
&10203040506050403020\ 0999919^2 + 181818181818000^2 &&= 102030405060504030201\ 000081^2 \\
&102030405060706050403020\ 0999919^2 + 18181818181818000^2 &&= 1020304050607060504030201\ 000081^2 \\
&1020304050607080706050403020\ 0999919^2 + 1818181818181818000^2 &&= 10203040506070807060504030201\ 000081^2 \\
&10203040506070809080706050403020\ 0999919^2 + 181818181818181818000^2 &&= 102030405060708090807060504030201\ 000081^2 \\
&&&(4.9)
\end{aligned}$$

$$\begin{aligned}
&0999900^2 + 20000^2 &= &1\ 000100^2 \\
&1020\ 0999900^2 + 2020000^2 &= &10201\ 000100^2 \\
&10203020\ 0999900^2 + 202020000^2 &= &102030201\ 000100^2 \\
&102030403020\ 0999900^2 + 20202020000^2 &= &1020304030201\ 000100^2 \\
&1020304050403020\ 0999900^2 + 2020202020000^2 &= &10203040504030201\ 000100^2 \\
&10203040506050403020\ 0999900^2 + 202020202020000^2 &= &102030405060504030201\ 000100^2 \\
&102030405060706050403020\ 0999900^2 + 20202020202020000^2 &= &1020304050607060504030201\ 000100^2 \\
&1020304050607080706050403020\ 0999900^2 + 2020202020202020000^2 &= &10203040506070807060504030201\ 000100^2 \\
&10203040506070809080706050403020\ 0999900^2 + 202020202020202020000^2 &= &102030405060708090807060504030201\ 000100^2
\end{aligned}
\tag{4.10}$$

$$\begin{aligned}
&0999879^2 + 22000^2 &= &1\ 000121^2 \\
&1020\ 0999879^2 + 2222000^2 &= &10201\ 000121^2 \\
&10203020\ 0999879^2 + 222222000^2 &= &102030201\ 000121^2 \\
&102030403020\ 0999879^2 + 22222222000^2 &= &1020304030201\ 000121^2 \\
&1020304050403020\ 0999879^2 + 2222222222000^2 &= &10203040504030201\ 000121^2 \\
&10203040506050403020\ 0999879^2 + 222222222222000^2 &= &102030405060504030201\ 000121^2 \\
&102030405060706050403020\ 0999879^2 + 22222222222222000^2 &= &1020304050607060504030201\ 000121^2 \\
&1020304050607080706050403020\ 0999879^2 + 2222222222222222000^2 &= &10203040506070807060504030201\ 000121^2 \\
&10203040506070809080706050403020\ 0999879^2 + 222222222222222222000^2 &= &102030405060708090807060504030201\ 000121^2
\end{aligned}
\tag{4.11}$$

$$\begin{aligned}
&0999856^2 + 24000^2 &= &1\ 000144^2 \\
&1020\ 0999856^2 + 2424000^2 &= &10201\ 000144^2 \\
&10203020\ 0999856^2 + 242424000^2 &= &102030201\ 000144^2 \\
&102030403020\ 0999856^2 + 24242424000^2 &= &1020304030201\ 000144^2 \\
&1020304050403020\ 0999856^2 + 2424242424000^2 &= &10203040504030201\ 000144^2 \\
&10203040506050403020\ 0999856^2 + 242424242424000^2 &= &102030405060504030201\ 000144^2 \\
&102030405060706050403020\ 0999856^2 + 24242424242424000^2 &= &1020304050607060504030201\ 000144^2 \\
&1020304050607080706050403020\ 0999856^2 + 2424242424242424000^2 &= &10203040506070807060504030201\ 000144^2 \\
&10203040506070809080706050403020\ 0999856^2 + 242424242424242424000^2 &= &102030405060708090807060504030201\ 000144^2
\end{aligned}
\tag{4.12}$$

$$\begin{aligned}
&0999831^2 + 26000^2 &= &1\ 000169^2 \\
&1020\ 0999831^2 + 2626000^2 &= &10201\ 000169^2 \\
&10203020\ 0999831^2 + 262626000^2 &= &102030201\ 000169^2 \\
&102030403020\ 0999831^2 + 26262626000^2 &= &1020304030201\ 000169^2 \\
&1020304050403020\ 0999831^2 + 2626262626000^2 &= &10203040504030201\ 000169^2 \\
&10203040506050403020\ 0999831^2 + 262626262626000^2 &= &102030405060504030201\ 000169^2 \\
&102030405060706050403020\ 0999831^2 + 26262626262626000^2 &= &1020304050607060504030201\ 000169^2 \\
&1020304050607080706050403020\ 0999831^2 + 2626262626262626000^2 &= &10203040506070807060504030201\ 000169^2 \\
&10203040506070809080706050403020\ 0999831^2 + 262626262626262626000^2 &= &102030405060708090807060504030201\ 000169^2
\end{aligned}
\tag{4.13}$$

$$\begin{aligned}
& 0999804^2 + 28000^2 &= 1\ 000196^2 \\
& 1020\ 0999804^2 + 2828000^2 &= 10201\ 000196^2 \\
& 10203020\ 0999804^2 + 282828000^2 &= 102030201\ 000196^2 \\
& 102030403020\ 0999804^2 + 28282828000^2 &= 1020304030201\ 000196^2 \\
& 1020304050403020\ 0999804^2 + 2828282828000^2 &= 10203040504030201\ 000196^2 \\
& 10203040506050403020\ 0999804^2 + 282828282828000^2 &= 102030405060504030201\ 000196^2 \\
& 102030405060706050403020\ 0999804^2 + 28282828282828000^2 &= 1020304050607060504030201\ 000196^2 \\
& 1020304050607080706050403020\ 0999804^2 + 2828282828282828000^2 &= 10203040506070807060504030201\ 000196^2 \\
& 10203040506070809080706050403020\ 0999804^2 + 282828282828282828000^2 &= 102030405060708090807060504030201\ 000196^2
\end{aligned}
\tag{4.14}$$

$$\begin{aligned}
& 0999775^2 + 30000^2 &= 1\ 000225^2 \\
& 1020\ 0999775^2 + 3030000^2 &= 10201\ 000225^2 \\
& 10203020\ 0999775^2 + 303030000^2 &= 102030201\ 000225^2 \\
& 102030403020\ 0999775^2 + 30303030000^2 &= 1020304030201\ 000225^2 \\
& 1020304050403020\ 0999775^2 + 3030303030000^2 &= 10203040504030201\ 000225^2 \\
& 10203040506050403020\ 0999775^2 + 303030303030000^2 &= 102030405060504030201\ 000225^2 \\
& 102030405060706050403020\ 0999775^2 + 30303030303030000^2 &= 1020304050607060504030201\ 000225^2 \\
& 1020304050607080706050403020\ 0999775^2 + 3030303030303030000^2 &= 10203040506070807060504030201\ 000225^2 \\
& 10203040506070809080706050403020\ 0999775^2 + 303030303030303030000^2 &= 102030405060708090807060504030201\ 000225^2
\end{aligned}
\tag{4.15}$$

$$\begin{aligned}
& 0999744^2 + 32000^2 &= 1\ 000256^2 \\
& 1020\ 0999744^2 + 3232000^2 &= 10201\ 000256^2 \\
& 10203020\ 0999744^2 + 323232000^2 &= 102030201\ 000256^2 \\
& 102030403020\ 0999744^2 + 32323232000^2 &= 1020304030201\ 000256^2 \\
& 1020304050403020\ 0999744^2 + 3232323232000^2 &= 10203040504030201\ 000256^2 \\
& 10203040506050403020\ 0999744^2 + 323232323232000^2 &= 102030405060504030201\ 000256^2 \\
& 102030405060706050403020\ 0999744^2 + 32323232323232000^2 &= 1020304050607060504030201\ 000256^2 \\
& 1020304050607080706050403020\ 0999744^2 + 3232323232323232000^2 &= 10203040506070807060504030201\ 000256^2 \\
& 10203040506070809080706050403020\ 0999744^2 + 323232323232323232000^2 &= 102030405060708090807060504030201\ 000256^2
\end{aligned}
\tag{4.16}$$



$$\begin{aligned}
& 0999711^2 + 34000^2 &= 1\ 000289^2 \\
& 1020\ 0999711^2 + 3434000^2 &= 10201\ 000289^2 \\
& 10203020\ 0999711^2 + 343434000^2 &= 102030201\ 000289^2 \\
& 102030403020\ 0999711^2 + 34343434000^2 &= 1020304030201\ 000289^2 \\
& 1020304050403020\ 0999711^2 + 3434343434000^2 &= 10203040504030201\ 000289^2 \\
& 10203040506050403020\ 0999711^2 + 343434343434000^2 &= 102030405060504030201\ 000289^2 \\
& 102030405060706050403020\ 0999711^2 + 34343434343434000^2 &= 1020304050607060504030201\ 000289^2 \\
& 1020304050607080706050403020\ 0999711^2 + 3434343434343434000^2 &= 10203040506070807060504030201\ 000289^2 \\
& 10203040506070809080706050403020\ 0999711^2 + 343434343434343434000^2 &= 102030405060708090807060504030201\ 000289^2
\end{aligned}
\tag{4.17}$$

$$\begin{aligned}
& 0999676^2 + 36000^2 &= 1\ 000324^2 \\
& 1020\ 0999676^2 + 3636000^2 &= 10201\ 000324^2 \\
& 10203020\ 0999676^2 + 363636000^2 &= 102030201\ 000324^2 \\
& 102030403020\ 0999676^2 + 36363636000^2 &= 1020304030201\ 000324^2 \\
& 1020304050403020\ 0999676^2 + 3636363636000^2 &= 10203040504030201\ 000324^2 \\
& 10203040506050403020\ 0999676^2 + 363636363636000^2 &= 102030405060504030201\ 000324^2 \\
& 102030405060706050403020\ 0999676^2 + 36363636363636000^2 &= 1020304050607060504030201\ 000324^2 \\
& 1020304050607080706050403020\ 0999676^2 + 3636363636363636000^2 &= 10203040506070807060504030201\ 000324^2 \\
& 10203040506070809080706050403020\ 0999676^2 + 363636363636363636000^2 &= 102030405060708090807060504030201\ 000324^2
\end{aligned}
\tag{4.18}$$

$$\begin{aligned}
& 0999639^2 + 38000^2 &= 1\ 000361^2 \\
& 1020\ 0999639^2 + 3838000^2 &= 10201\ 000361^2 \\
& 10203020\ 0999639^2 + 383838000^2 &= 102030201\ 000361^2 \\
& 102030403020\ 0999639^2 + 38383838000^2 &= 1020304030201\ 000361^2 \\
& 1020304050403020\ 0999639^2 + 3838383838000^2 &= 10203040504030201\ 000361^2 \\
& 10203040506050403020\ 0999639^2 + 383838383838000^2 &= 102030405060504030201\ 000361^2 \\
& 102030405060706050403020\ 0999639^2 + 38383838383838000^2 &= 1020304050607060504030201\ 000361^2 \\
& 1020304050607080706050403020\ 0999639^2 + 3838383838383838000^2 &= 10203040506070807060504030201\ 000361^2 \\
& 10203040506070809080706050403020\ 0999639^2 + 383838383838383838000^2 &= 102030405060708090807060504030201\ 000361^2
\end{aligned}
\tag{4.19}$$

#### 4.1.2 For $n = 20, 21, 22, \dots, 97, 98, 99$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 20, 21, 22, \dots, 97, 98, 99$ ; there are 80 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.

$$\begin{aligned}
0999600^2 + 40000^2 &= 1\ 000400^2 \\
1020\ 0999600^2 + 4040000^2 &= 10201\ 000400^2 \\
10203020\ 0999600^2 + 404040000^2 &= 102030201\ 000400^2 \\
102030403020\ 0999600^2 + 40404040000^2 &= 1020304030201\ 000400^2 \\
&(4.20)
\end{aligned}$$

$$\begin{aligned}
0999559^2 + 42000^2 &= 1\ 000441^2 \\
1020\ 0999559^2 + 4242000^2 &= 10201\ 000441^2 \\
10203020\ 0999559^2 + 424242000^2 &= 102030201\ 000441^2 \\
102030403020\ 0999559^2 + 42424242000^2 &= 1020304030201\ 000441^2 \\
&(4.21)
\end{aligned}$$

$$\begin{aligned}
0999516^2 + 44000^2 &= 1\ 000484^2 \\
1020\ 0999516^2 + 4444000^2 &= 10201\ 000484^2 \\
10203020\ 0999516^2 + 444444000^2 &= 102030201\ 000484^2 \\
102030403020\ 0999516^2 + 44444444000^2 &= 1020304030201\ 000484^2 \\
&(4.22)
\end{aligned}$$

$$\begin{aligned}
0999471^2 + 46000^2 &= 1\ 000529^2 \\
1020\ 0999471^2 + 4646000^2 &= 10201\ 000529^2 \\
10203020\ 0999471^2 + 464646000^2 &= 102030201\ 000529^2 \\
102030403020\ 0999471^2 + 46464646000^2 &= 1020304030201\ 000529^2 \\
&(4.23)
\end{aligned}$$

$$\begin{aligned}
0999424^2 + 48000^2 &= 1\ 000576^2 \\
1020\ 0999424^2 + 4848000^2 &= 10201\ 000576^2 \\
10203020\ 0999424^2 + 484848000^2 &= 102030201\ 000576^2 \\
102030403020\ 0999424^2 + 48484848000^2 &= 1020304030201\ 000576^2 \\
&(4.24)
\end{aligned}$$

$$\begin{aligned}
0999375^2 + 50000^2 &= 1\ 000625^2 \\
1020\ 0999375^2 + 5050000^2 &= 10201\ 000625^2 \\
10203020\ 0999375^2 + 505050000^2 &= 102030201\ 000625^2 \\
102030403020\ 0999375^2 + 50505050000^2 &= 1020304030201\ 000625^2 \\
&(4.25)
\end{aligned}$$

$$\begin{aligned}
0999324^2 + 52000^2 &= 1\ 000676^2 \\
1020\ 0999324^2 + 5252000^2 &= 10201\ 000676^2 \\
10203020\ 0999324^2 + 525252000^2 &= 102030201\ 000676^2 \\
102030403020\ 0999324^2 + 52525252000^2 &= 1020304030201\ 000676^2 \\
&(4.26)
\end{aligned}$$

$$\begin{aligned}
0999271^2 + 54000^2 &= 1\ 000729^2 \\
1020\ 0999271^2 + 5454000^2 &= 10201\ 000729^2 \\
10203020\ 0999271^2 + 545454000^2 &= 102030201\ 000729^2 \\
102030403020\ 0999271^2 + 54545454000^2 &= 1020304030201\ 000729^2 \\
&(4.27)
\end{aligned}$$

$$\begin{aligned}
0999216^2 + 56000^2 &= 1\ 000784^2 \\
1020\ 0999216^2 + 5656000^2 &= 10201\ 000784^2 \\
10203020\ 0999216^2 + 565656000^2 &= 102030201\ 000784^2 \\
102030403020\ 0999216^2 + 56565656000^2 &= 1020304030201\ 000784^2 \\
&(4.28)
\end{aligned}$$

$$\begin{aligned}
0999159^2 + 58000^2 &= 1\ 000841^2 \\
1020\ 0999159^2 + 5858000^2 &= 10201\ 000841^2 \\
10203020\ 0999159^2 + 585858000^2 &= 102030201\ 000841^2 \\
102030403020\ 0999159^2 + 58585858000^2 &= 1020304030201\ 000841^2 \\
&(4.29)
\end{aligned}$$

$$\begin{aligned}
0999100^2 + 60000^2 &= 1\ 000900^2 \\
1020\ 0999100^2 + 6060000^2 &= 10201\ 000900^2 \\
10203020\ 0999100^2 + 606060000^2 &= 102030201\ 000900^2 \\
102030403020\ 0999100^2 + 60606060000^2 &= 1020304030201\ 000900^2 \\
&(4.30)
\end{aligned}$$

$$\begin{aligned}
0999039^2 + 62000^2 &= 1\ 000961^2 \\
1020\ 0999039^2 + 6262000^2 &= 10201\ 000961^2 \\
10203020\ 0999039^2 + 626262000^2 &= 102030201\ 000961^2 \\
102030403020\ 0999039^2 + 62626262000^2 &= 1020304030201\ 000961^2 \\
&(4.31)
\end{aligned}$$

$$\begin{aligned}
0998976^2 + 64000^2 &= 1\ 001024^2 \\
1020\ 0998976^2 + 6464000^2 &= 10201\ 001024^2 \\
10203020\ 0998976^2 + 646464000^2 &= 102030201\ 001024^2 \\
102030403020\ 0998976^2 + 64646464000^2 &= 1020304030201\ 001024^2 \\
&(4.32)
\end{aligned}$$

$$\begin{aligned}
0998911^2 + 66000^2 &= 1\ 001089^2 \\
1020\ 0998911^2 + 6666000^2 &= 10201\ 001089^2 \\
10203020\ 0998911^2 + 666666000^2 &= 102030201\ 001089^2 \\
102030403020\ 0998911^2 + 66666666000^2 &= 1020304030201\ 001089^2 \\
&(4.33)
\end{aligned}$$

$$\begin{aligned}
0998844^2 + 68000^2 &= 1\ 001156^2 \\
1020\ 0998844^2 + 6868000^2 &= 10201\ 001156^2 \\
10203020\ 0998844^2 + 686868000^2 &= 102030201\ 001156^2 \\
102030403020\ 0998844^2 + 68686868000^2 &= 1020304030201\ 001156^2 \\
&(4.34)
\end{aligned}$$

$$\begin{aligned}
0998775^2 + 70000^2 &= 1\ 001225^2 \\
1020\ 0998775^2 + 7070000^2 &= 10201\ 001225^2 \\
10203020\ 0998775^2 + 707070000^2 &= 102030201\ 001225^2 \\
102030403020\ 0998775^2 + 70707070000^2 &= 1020304030201\ 001225^2 \\
&(4.35)
\end{aligned}$$

$$\begin{aligned}
0998704^2 + 72000^2 &= 1\ 001296^2 \\
1020\ 0998704^2 + 7272000^2 &= 10201\ 001296^2 \\
10203020\ 0998704^2 + 727272000^2 &= 102030201\ 001296^2 \\
102030403020\ 0998704^2 + 72727272000^2 &= 1020304030201\ 001296^2 \\
&\quad (4.36)
\end{aligned}$$

$$\begin{aligned}
0998631^2 + 74000^2 &= 1\ 001369^2 \\
1020\ 0998631^2 + 7474000^2 &= 10201\ 001369^2 \\
10203020\ 0998631^2 + 747474000^2 &= 102030201\ 001369^2 \\
102030403020\ 0998631^2 + 74747474000^2 &= 1020304030201\ 001369^2 \\
&\quad (4.37)
\end{aligned}$$

$$\begin{aligned}
0998556^2 + 76000^2 &= 1\ 001444^2 \\
1020\ 0998556^2 + 7676000^2 &= 10201\ 001444^2 \\
10203020\ 0998556^2 + 767676000^2 &= 102030201\ 001444^2 \\
102030403020\ 0998556^2 + 76767676000^2 &= 1020304030201\ 001444^2 \\
&\quad (4.38)
\end{aligned}$$

$$\begin{aligned}
0998479^2 + 78000^2 &= 1\ 001521^2 \\
1020\ 0998479^2 + 7878000^2 &= 10201\ 001521^2 \\
10203020\ 0998479^2 + 787878000^2 &= 102030201\ 001521^2 \\
102030403020\ 0998479^2 + 78787878000^2 &= 1020304030201\ 001521^2 \\
&\quad (4.39)
\end{aligned}$$

$$\begin{aligned}
0998400^2 + 80000^2 &= 1\ 001600^2 \\
1020\ 0998400^2 + 8080000^2 &= 10201\ 001600^2 \\
10203020\ 0998400^2 + 808080000^2 &= 102030201\ 001600^2 \\
102030403020\ 0998400^2 + 80808080000^2 &= 1020304030201\ 001600^2 \\
&\quad (4.40)
\end{aligned}$$

$$\begin{aligned}
0998319^2 + 82000^2 &= 1\ 001681^2 \\
1020\ 0998319^2 + 8282000^2 &= 10201\ 001681^2 \\
10203020\ 0998319^2 + 828282000^2 &= 102030201\ 001681^2 \\
102030403020\ 0998319^2 + 82828282000^2 &= 1020304030201\ 001681^2 \\
&\quad (4.41)
\end{aligned}$$

$$\begin{aligned}
0998236^2 + 84000^2 &= 1\ 001764^2 \\
1020\ 0998236^2 + 8484000^2 &= 10201\ 001764^2 \\
10203020\ 0998236^2 + 848484000^2 &= 102030201\ 001764^2 \\
102030403020\ 0998236^2 + 84848484000^2 &= 1020304030201\ 001764^2 \\
&\quad (4.42)
\end{aligned}$$

$$\begin{aligned}
0998151^2 + 86000^2 &= 1\ 001849^2 \\
1020\ 0998151^2 + 8686000^2 &= 10201\ 001849^2 \\
10203020\ 0998151^2 + 868686000^2 &= 102030201\ 001849^2 \\
102030403020\ 0998151^2 + 86868686000^2 &= 1020304030201\ 001849^2 \\
&\quad (4.43)
\end{aligned}$$

$$\begin{aligned}
0998064^2 + 88000^2 &= 1\ 001936^2 \\
1020\ 0998064^2 + 8888000^2 &= 10201\ 001936^2 \\
10203020\ 0998064^2 + 888888000^2 &= 102030201\ 001936^2 \\
102030403020\ 0998064^2 + 88888888000^2 &= 1020304030201\ 001936^2 \\
&\quad (4.44)
\end{aligned}$$

$$\begin{aligned}
0997975^2 + 90000^2 &= 1\ 002025^2 \\
1020\ 0997975^2 + 9090000^2 &= 10201\ 002025^2 \\
10203020\ 0997975^2 + 909090000^2 &= 102030201\ 002025^2 \\
102030403020\ 0997975^2 + 90909090000^2 &= 1020304030201\ 002025^2 \\
&\quad (4.45)
\end{aligned}$$

$$\begin{aligned}
0997884^2 + 92000^2 &= 1\ 002116^2 \\
1020\ 0997884^2 + 9292000^2 &= 10201\ 002116^2 \\
10203020\ 0997884^2 + 929292000^2 &= 102030201\ 002116^2 \\
102030403020\ 0997884^2 + 92929292000^2 &= 1020304030201\ 002116^2 \\
&\quad (4.46)
\end{aligned}$$

$$\begin{aligned}
0997791^2 + 94000^2 &= 1\ 002209^2 \\
1020\ 0997791^2 + 9494000^2 &= 10201\ 002209^2 \\
10203020\ 0997791^2 + 949494000^2 &= 102030201\ 002209^2 \\
102030403020\ 0997791^2 + 94949494000^2 &= 1020304030201\ 002209^2 \\
&\quad (4.47)
\end{aligned}$$

$$\begin{aligned}
0997696^2 + 96000^2 &= 1\ 002304^2 \\
1020\ 0997696^2 + 9696000^2 &= 10201\ 002304^2 \\
10203020\ 0997696^2 + 969696000^2 &= 102030201\ 002304^2 \\
102030403020\ 0997696^2 + 96969696000^2 &= 1020304030201\ 002304^2 \\
&\quad (4.48)
\end{aligned}$$

$$\begin{aligned}
0997599^2 + 98000^2 &= 1\ 002401^2 \\
1020\ 0997599^2 + 9898000^2 &= 10201\ 002401^2 \\
10203020\ 0997599^2 + 989898000^2 &= 102030201\ 002401^2 \\
102030403020\ 0997599^2 + 98989898000^2 &= 1020304030201\ 002401^2 \\
&\quad (4.49)
\end{aligned}$$

$$\begin{aligned}
0997500^2 + 100000^2 &= 1\ 002500^2 \\
1020\ 0997500^2 + 10100000^2 &= 10201\ 002500^2 \\
10203020\ 0997500^2 + 1010100000^2 &= 102030201\ 002500^2 \\
102030403020\ 0997500^2 + 101010100000^2 &= 1020304030201\ 002500^2 \\
&\quad (4.50)
\end{aligned}$$

$$\begin{aligned}
0997399^2 + 102000^2 &= 1\ 002601^2 \\
1020\ 0997399^2 + 10302000^2 &= 10201\ 002601^2 \\
10203020\ 0997399^2 + 1030302000^2 &= 102030201\ 002601^2 \\
102030403020\ 0997399^2 + 103030302000^2 &= 1020304030201\ 002601^2 \\
&\quad (4.51)
\end{aligned}$$

$$\begin{aligned}
0997296^2 + 104000^2 &= 1\ 002704^2 & 0996400^2 + 120000^2 &= 1\ 003600^2 \\
1020\ 0997296^2 + 10504000^2 &= 10201\ 002704^2 & 1020\ 0996400^2 + 12120000^2 &= 10201\ 003600^2 \\
10203020\ 0997296^2 + 1050504000^2 &= 102030201\ 002704^2 & 10203020\ 0996400^2 + 1212120000^2 &= 102030201\ 003600^2 \\
102030403020\ 0997296^2 + 105050504000^2 &= 1020304030201\ 002704^2 & 102030403020\ 0996400^2 + 121212120000^2 &= 1020304030201\ 003600^2 \\
&& (4.52) && (4.60)
\end{aligned}$$

$$\begin{aligned}
0997191^2 + 106000^2 &= 1\ 002809^2 & 0996279^2 + 122000^2 &= 1\ 003721^2 \\
1020\ 0997191^2 + 10706000^2 &= 10201\ 002809^2 & 1020\ 0996279^2 + 12322000^2 &= 10201\ 003721^2 \\
10203020\ 0997191^2 + 1070706000^2 &= 102030201\ 002809^2 & 10203020\ 0996279^2 + 1232322000^2 &= 102030201\ 003721^2 \\
102030403020\ 0997191^2 + 107070706000^2 &= 1020304030201\ 002809^2 & 102030403020\ 0996279^2 + 123232322000^2 &= 1020304030201\ 003721^2 \\
&& (4.53) && (4.61)
\end{aligned}$$

$$\begin{aligned}
0997084^2 + 108000^2 &= 1\ 002916^2 & 0996156^2 + 124000^2 &= 1\ 003844^2 \\
1020\ 0997084^2 + 10908000^2 &= 10201\ 002916^2 & 1020\ 0996156^2 + 12524000^2 &= 10201\ 003844^2 \\
10203020\ 0997084^2 + 1090908000^2 &= 102030201\ 002916^2 & 10203020\ 0996156^2 + 1252524000^2 &= 102030201\ 003844^2 \\
102030403020\ 0997084^2 + 109090908000^2 &= 1020304030201\ 002916^2 & 102030403020\ 0996156^2 + 125252524000^2 &= 1020304030201\ 003844^2 \\
&& (4.54) && (4.62)
\end{aligned}$$

$$\begin{aligned}
0996975^2 + 110000^2 &= 1\ 003025^2 & 0996031^2 + 126000^2 &= 1\ 003969^2 \\
1020\ 0996975^2 + 11110000^2 &= 10201\ 003025^2 & 1020\ 0996031^2 + 12726000^2 &= 10201\ 003969^2 \\
10203020\ 0996975^2 + 1111110000^2 &= 102030201\ 003025^2 & 10203020\ 0996031^2 + 1272726000^2 &= 102030201\ 003969^2 \\
102030403020\ 0996975^2 + 111111110000^2 &= 1020304030201\ 003025^2 & 102030403020\ 0996031^2 + 127272726000^2 &= 1020304030201\ 003969^2 \\
&& (4.55) && (4.63)
\end{aligned}$$

$$\begin{aligned}
0996864^2 + 112000^2 &= 1\ 003136^2 & 0995904^2 + 128000^2 &= 1\ 004096^2 \\
1020\ 0996864^2 + 11312000^2 &= 10201\ 003136^2 & 1020\ 0995904^2 + 12928000^2 &= 10201\ 004096^2 \\
10203020\ 0996864^2 + 1131312000^2 &= 102030201\ 003136^2 & 10203020\ 0995904^2 + 1292928000^2 &= 102030201\ 004096^2 \\
102030403020\ 0996864^2 + 113131312000^2 &= 1020304030201\ 003136^2 & 102030403020\ 0995904^2 + 129292928000^2 &= 1020304030201\ 004096^2 \\
&& (4.56) && (4.64)
\end{aligned}$$

$$\begin{aligned}
0996751^2 + 114000^2 &= 1\ 003249^2 & 0995775^2 + 130000^2 &= 1\ 004225^2 \\
1020\ 0996751^2 + 11514000^2 &= 10201\ 003249^2 & 1020\ 0995775^2 + 13130000^2 &= 10201\ 004225^2 \\
10203020\ 0996751^2 + 1151514000^2 &= 102030201\ 003249^2 & 10203020\ 0995775^2 + 1313130000^2 &= 102030201\ 004225^2 \\
102030403020\ 0996751^2 + 115151514000^2 &= 1020304030201\ 003249^2 & 102030403020\ 0995775^2 + 131313130000^2 &= 1020304030201\ 004225^2 \\
&& (4.57) && (4.65)
\end{aligned}$$

$$\begin{aligned}
0996636^2 + 116000^2 &= 1\ 003364^2 & 0995644^2 + 132000^2 &= 1\ 004356^2 \\
1020\ 0996636^2 + 11716000^2 &= 10201\ 003364^2 & 1020\ 0995644^2 + 13332000^2 &= 10201\ 004356^2 \\
10203020\ 0996636^2 + 1171716000^2 &= 102030201\ 003364^2 & 10203020\ 0995644^2 + 1333332000^2 &= 102030201\ 004356^2 \\
102030403020\ 0996636^2 + 117171716000^2 &= 1020304030201\ 003364^2 & 102030403020\ 0995644^2 + 133333332000^2 &= 1020304030201\ 004356^2 \\
&& (4.58) && (4.66)
\end{aligned}$$

$$\begin{aligned}
0996519^2 + 118000^2 &= 1\ 003481^2 & 0995511^2 + 134000^2 &= 1\ 004489^2 \\
1020\ 0996519^2 + 11918000^2 &= 10201\ 003481^2 & 1020\ 0995511^2 + 13534000^2 &= 10201\ 004489^2 \\
10203020\ 0996519^2 + 1191918000^2 &= 102030201\ 003481^2 & 10203020\ 0995511^2 + 1353534000^2 &= 102030201\ 004489^2 \\
102030403020\ 0996519^2 + 119191918000^2 &= 1020304030201\ 003481^2 & 102030403020\ 0995511^2 + 135353534000^2 &= 1020304030201\ 004489^2 \\
&& (4.59) && (4.67)
\end{aligned}$$

$$\begin{aligned}
0995376^2 + 136000^2 &= 1004624^2 & 0994224^2 + 152000^2 &= 1005776^2 \\
10200995376^2 + 13736000^2 &= 10201004624^2 & 10200994224^2 + 15352000^2 &= 10201005776^2 \\
102030200995376^2 + 1373736000^2 &= 102030201004624^2 & 102030200994224^2 + 1535352000^2 &= 102030201005776^2 \\
1020304030200995376^2 + 137373736000^2 &= 1020304030201004624^2 & 1020304030200994224^2 + 153535352000^2 &= 1020304030201005776^2 \\
&& (4.68) & (4.76)
\end{aligned}$$

$$\begin{aligned}
0995239^2 + 138000^2 &= 1004761^2 & 0994071^2 + 154000^2 &= 1005929^2 \\
10200995239^2 + 13938000^2 &= 10201004761^2 & 10200994071^2 + 15554000^2 &= 10201005929^2 \\
102030200995239^2 + 1393938000^2 &= 102030201004761^2 & 102030200994071^2 + 1555554000^2 &= 102030201005929^2 \\
1020304030200995239^2 + 139393938000^2 &= 1020304030201004761^2 & 1020304030200994071^2 + 155555554000^2 &= 1020304030201005929^2 \\
&& (4.69) & (4.77)
\end{aligned}$$

$$\begin{aligned}
0995100^2 + 140000^2 &= 1004900^2 & 0993916^2 + 156000^2 &= 1006084^2 \\
10200995100^2 + 14140000^2 &= 10201004900^2 & 10200993916^2 + 15756000^2 &= 10201006084^2 \\
102030200995100^2 + 1414140000^2 &= 102030201004900^2 & 102030200993916^2 + 1575756000^2 &= 102030201006084^2 \\
1020304030200995100^2 + 141414140000^2 &= 1020304030201004900^2 & 1020304030200993916^2 + 157575756000^2 &= 1020304030201006084^2 \\
&& (4.70) & (4.78)
\end{aligned}$$

$$\begin{aligned}
0994959^2 + 142000^2 &= 1005041^2 & 0993759^2 + 158000^2 &= 1006241^2 \\
10200994959^2 + 14342000^2 &= 10201005041^2 & 10200993759^2 + 15958000^2 &= 10201006241^2 \\
102030200994959^2 + 1434342000^2 &= 102030201005041^2 & 102030200993759^2 + 1595958000^2 &= 102030201006241^2 \\
1020304030200994959^2 + 143434342000^2 &= 1020304030201005041^2 & 1020304030200993759^2 + 159595958000^2 &= 1020304030201006241^2 \\
&& (4.71) & (4.79)
\end{aligned}$$

$$\begin{aligned}
0994816^2 + 144000^2 &= 1005184^2 & 0993600^2 + 160000^2 &= 1006400^2 \\
10200994816^2 + 14544000^2 &= 10201005184^2 & 10200993600^2 + 16160000^2 &= 10201006400^2 \\
102030200994816^2 + 1454544000^2 &= 102030201005184^2 & 102030200993600^2 + 1616160000^2 &= 102030201006400^2 \\
1020304030200994816^2 + 145454544000^2 &= 1020304030201005184^2 & 1020304030200993600^2 + 161616160000^2 &= 1020304030201006400^2 \\
&& (4.72) & (4.80)
\end{aligned}$$

$$\begin{aligned}
0994671^2 + 146000^2 &= 1005329^2 & 0993439^2 + 162000^2 &= 1006561^2 \\
10200994671^2 + 14746000^2 &= 10201005329^2 & 10200993439^2 + 16362000^2 &= 10201006561^2 \\
102030200994671^2 + 1474746000^2 &= 102030201005329^2 & 102030200993439^2 + 1636362000^2 &= 102030201006561^2 \\
1020304030200994671^2 + 147474746000^2 &= 1020304030201005329^2 & 1020304030200993439^2 + 163636362000^2 &= 1020304030201006561^2 \\
&& (4.73) & (4.81)
\end{aligned}$$

$$\begin{aligned}
0994524^2 + 148000^2 &= 1005476^2 & 0993276^2 + 164000^2 &= 1006724^2 \\
10200994524^2 + 14948000^2 &= 10201005476^2 & 10200993276^2 + 16564000^2 &= 10201006724^2 \\
102030200994524^2 + 1494948000^2 &= 102030201005476^2 & 102030200993276^2 + 1656564000^2 &= 102030201006724^2 \\
1020304030200994524^2 + 149494948000^2 &= 1020304030201005476^2 & 1020304030200993276^2 + 165656564000^2 &= 1020304030201006724^2 \\
&& (4.74) & (4.82)
\end{aligned}$$

$$\begin{aligned}
0994375^2 + 150000^2 &= 1005625^2 & 0993111^2 + 166000^2 &= 1006889^2 \\
10200994375^2 + 15150000^2 &= 10201005625^2 & 10200993111^2 + 16766000^2 &= 10201006889^2 \\
102030200994375^2 + 1515150000^2 &= 102030201005625^2 & 102030200993111^2 + 1676766000^2 &= 102030201006889^2 \\
1020304030200994375^2 + 151515150000^2 &= 1020304030201005625^2 & 1020304030200993111^2 + 167676766000^2 &= 1020304030201006889^2 \\
&& (4.75) & (4.83)
\end{aligned}$$

$$\begin{aligned}
0992944^2 + 168000^2 &= 1007056^2 & 0991536^2 + 184000^2 &= 1008464^2 \\
10200992944^2 + 16968000^2 &= 10201007056^2 & 10200991536^2 + 18584000^2 &= 10201008464^2 \\
102030200992944^2 + 1696968000^2 &= 102030201007056^2 & 102030200991536^2 + 1858584000^2 &= 102030201008464^2 \\
1020304030200992944^2 + 169696968000^2 &= 1020304030201007056^2 & 1020304030200991536^2 + 185858584000^2 &= 1020304030201008464^2 \\
&& & (4.84) & & & (4.92)
\end{aligned}$$

$$\begin{aligned}
0992775^2 + 170000^2 &= 1007225^2 & 0991351^2 + 186000^2 &= 1008649^2 \\
10200992775^2 + 17170000^2 &= 10201007225^2 & 10200991351^2 + 18786000^2 &= 10201008649^2 \\
102030200992775^2 + 1717170000^2 &= 102030201007225^2 & 102030200991351^2 + 1878786000^2 &= 102030201008649^2 \\
1020304030200992775^2 + 171717170000^2 &= 1020304030201007225^2 & 1020304030200991351^2 + 187878786000^2 &= 1020304030201008649^2 \\
&& & (4.85) & & & (4.93)
\end{aligned}$$

$$\begin{aligned}
0992604^2 + 172000^2 &= 1007396^2 & 0991164^2 + 188000^2 &= 1008836^2 \\
10200992604^2 + 17372000^2 &= 10201007396^2 & 10200991164^2 + 18988000^2 &= 10201008836^2 \\
102030200992604^2 + 1737372000^2 &= 102030201007396^2 & 102030200991164^2 + 1898988000^2 &= 102030201008836^2 \\
1020304030200992604^2 + 173737372000^2 &= 1020304030201007396^2 & 1020304030200991164^2 + 189898988000^2 &= 1020304030201008836^2 \\
&& & (4.86) & & & (4.94)
\end{aligned}$$

$$\begin{aligned}
0992431^2 + 174000^2 &= 1007569^2 & 0990975^2 + 190000^2 &= 1009025^2 \\
10200992431^2 + 17574000^2 &= 10201007569^2 & 10200990975^2 + 19190000^2 &= 10201009025^2 \\
102030200992431^2 + 1757574000^2 &= 102030201007569^2 & 102030200990975^2 + 1919190000^2 &= 102030201009025^2 \\
1020304030200992431^2 + 175757574000^2 &= 1020304030201007569^2 & 1020304030200990975^2 + 191919190000^2 &= 1020304030201009025^2 \\
&& & (4.87) & & & (4.95)
\end{aligned}$$

$$\begin{aligned}
0992256^2 + 176000^2 &= 1007744^2 & 0990784^2 + 192000^2 &= 1009216^2 \\
10200992256^2 + 17776000^2 &= 10201007744^2 & 10200990784^2 + 19392000^2 &= 10201009216^2 \\
102030200992256^2 + 1777776000^2 &= 102030201007744^2 & 102030200990784^2 + 1939392000^2 &= 102030201009216^2 \\
1020304030200992256^2 + 177777776000^2 &= 1020304030201007744^2 & 1020304030200990784^2 + 193939392000^2 &= 1020304030201009216^2 \\
&& & (4.88) & & & (4.96)
\end{aligned}$$

$$\begin{aligned}
0992079^2 + 178000^2 &= 1007921^2 & 0990591^2 + 194000^2 &= 1009409^2 \\
10200992079^2 + 17978000^2 &= 10201007921^2 & 10200990591^2 + 19594000^2 &= 10201009409^2 \\
102030200992079^2 + 1797978000^2 &= 102030201007921^2 & 102030200990591^2 + 1959594000^2 &= 102030201009409^2 \\
1020304030200992079^2 + 179797978000^2 &= 1020304030201007921^2 & 1020304030200990591^2 + 195959594000^2 &= 1020304030201009409^2 \\
&& & (4.89) & & & (4.97)
\end{aligned}$$

$$\begin{aligned}
0991900^2 + 180000^2 &= 1008100^2 & 0990396^2 + 196000^2 &= 1009604^2 \\
10200991900^2 + 18180000^2 &= 10201008100^2 & 10200990396^2 + 19796000^2 &= 10201009604^2 \\
102030200991900^2 + 1818180000^2 &= 102030201008100^2 & 102030200990396^2 + 1979796000^2 &= 102030201009604^2 \\
1020304030200991900^2 + 181818180000^2 &= 1020304030201008100^2 & 1020304030200990396^2 + 197979796000^2 &= 1020304030201009604^2 \\
&& & (4.90) & & & (4.98)
\end{aligned}$$

$$\begin{aligned}
0991719^2 + 182000^2 &= 1008281^2 & 0990199^2 + 198000^2 &= 1009801^2 \\
10200991719^2 + 18382000^2 &= 10201008281^2 & 10200990199^2 + 19998000^2 &= 10201009801^2 \\
102030200991719^2 + 1838382000^2 &= 102030201008281^2 & 102030200990199^2 + 1999998000^2 &= 102030201009801^2 \\
1020304030200991719^2 + 183838382000^2 &= 1020304030201008281^2 & 1020304030200990199^2 + 199999998000^2 &= 1020304030201009801^2 \\
&& & (4.91) & & & (4.99)
\end{aligned}$$

## 4.2 For $n = 100, 101, 101, \dots, 197, 198, 199$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 100, 101, 101, \dots, 197, 198, 199$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$0990000^2 + 200000^2 = 1010000^2$	$0988551^2 + 214000^2 = 1011449^2$
$10200990000^2 + 20200000^2 = 10201010000^2$	$10200988551^2 + 21614000^2 = 10201011449^2$
$102030200990000^2 + 2020200000^2 = 102030201010000^2$	$102030200988551^2 + 2161614000^2 = 102030201011449^2$
$1020304030200990000^2 + 202020200000^2 = 1020304030201010000^2$ (4.100)	$1020304030200988551^2 + 216161614000^2 = 1020304030201011449^2$ (4.107)
$0989799^2 + 202000^2 = 1010201^2$	$0988336^2 + 216000^2 = 1011664^2$
$10200989799^2 + 20402000^2 = 10201010201^2$	$10200988336^2 + 21816000^2 = 10201011664^2$
$102030200989799^2 + 2040402000^2 = 102030201010201^2$	$102030200988336^2 + 2181816000^2 = 102030201011664^2$
$1020304030200989799^2 + 204040402000^2 = 1020304030201010201^2$ (4.101)	$1020304030200988336^2 + 218181816000^2 = 1020304030201011664^2$ (4.108)
$0989596^2 + 204000^2 = 1010404^2$	$0988119^2 + 218000^2 = 1011881^2$
$10200989596^2 + 20604000^2 = 10201010404^2$	$10200988119^2 + 22018000^2 = 10201011881^2$
$102030200989596^2 + 2060604000^2 = 102030201010404^2$	$102030200988119^2 + 2202018000^2 = 102030201011881^2$
$1020304030200989596^2 + 206060604000^2 = 1020304030201010404^2$ (4.102)	$1020304030200988119^2 + 220202018000^2 = 1020304030201011881^2$ (4.109)
$0989391^2 + 206000^2 = 1010609^2$	$0987900^2 + 220000^2 = 1012100^2$
$10200989391^2 + 20806000^2 = 10201010609^2$	$10200987900^2 + 22220000^2 = 10201012100^2$
$102030200989391^2 + 2080806000^2 = 102030201010609^2$	$102030200987900^2 + 2222220000^2 = 102030201012100^2$
$1020304030200989391^2 + 208080806000^2 = 1020304030201010609^2$ (4.103)	$1020304030200987900^2 + 222222220000^2 = 1020304030201012100^2$ (4.110)
$0989184^2 + 208000^2 = 1010816^2$	$0987679^2 + 222000^2 = 1012321^2$
$10200989184^2 + 21008000^2 = 10201010816^2$	$10200987679^2 + 22422000^2 = 10201012321^2$
$102030200989184^2 + 2101008000^2 = 102030201010816^2$	$102030200987679^2 + 2242422000^2 = 102030201012321^2$
$1020304030200989184^2 + 210101008000^2 = 1020304030201010816^2$ (4.104)	$1020304030200987679^2 + 224242422000^2 = 1020304030201012321^2$ (4.111)
$0988975^2 + 210000^2 = 1011025^2$	$0987456^2 + 224000^2 = 1012544^2$
$10200988975^2 + 21210000^2 = 10201011025^2$	$10200987456^2 + 22624000^2 = 10201012544^2$
$102030200988975^2 + 2121210000^2 = 102030201011025^2$	$102030200987456^2 + 2262624000^2 = 102030201012544^2$
$1020304030200988975^2 + 212121210000^2 = 1020304030201011025^2$ (4.105)	$1020304030200987456^2 + 226262624000^2 = 1020304030201012544^2$ (4.112)
$0988764^2 + 212000^2 = 1011236^2$	$0987231^2 + 226000^2 = 1012769^2$
$10200988764^2 + 21412000^2 = 10201011236^2$	$10200987231^2 + 22826000^2 = 10201012769^2$
$102030200988764^2 + 2141412000^2 = 102030201011236^2$	$102030200987231^2 + 2282826000^2 = 102030201012769^2$
$1020304030200988764^2 + 214141412000^2 = 1020304030201011236^2$ (4.106)	$1020304030200987231^2 + 228282826000^2 = 1020304030201012769^2$ (4.113)

$$\begin{aligned}
0987004^2 + 228000^2 &= 1\ 012996^2 & 0985116^2 + 244000^2 &= 1\ 014884^2 \\
1020\ 0987004^2 + 23028000^2 &= 10201\ 012996^2 & 1020\ 0985116^2 + 24644000^2 &= 10201\ 014884^2 \\
10203020\ 0987004^2 + 2303028000^2 &= 102030201\ 012996^2 & 10203020\ 0985116^2 + 2464644000^2 &= 102030201\ 014884^2 \\
102030403020\ 0987004^2 + 230303028000^2 &= 1020304030201\ 012996^2 & 102030403020\ 0985116^2 + 246464644000^2 &= 1020304030201\ 014884^2 \\
&& & (4.114) & & (4.122)
\end{aligned}$$

$$\begin{aligned}
0986775^2 + 230000^2 &= 1\ 013225^2 & 0984871^2 + 246000^2 &= 1\ 015129^2 \\
1020\ 0986775^2 + 23230000^2 &= 10201\ 013225^2 & 1020\ 0984871^2 + 24846000^2 &= 10201\ 015129^2 \\
10203020\ 0986775^2 + 2323230000^2 &= 102030201\ 013225^2 & 10203020\ 0984871^2 + 2484846000^2 &= 102030201\ 015129^2 \\
102030403020\ 0986775^2 + 232323230000^2 &= 1020304030201\ 013225^2 & 102030403020\ 0984871^2 + 248484846000^2 &= 1020304030201\ 015129^2 \\
&& & (4.115) & & (4.123)
\end{aligned}$$

$$\begin{aligned}
0986544^2 + 232000^2 &= 1\ 013456^2 & 0984624^2 + 248000^2 &= 1\ 015376^2 \\
1020\ 0986544^2 + 23432000^2 &= 10201\ 013456^2 & 1020\ 0984624^2 + 25048000^2 &= 10201\ 015376^2 \\
10203020\ 0986544^2 + 2343432000^2 &= 102030201\ 013456^2 & 10203020\ 0984624^2 + 2505048000^2 &= 102030201\ 015376^2 \\
102030403020\ 0986544^2 + 234343432000^2 &= 1020304030201\ 013456^2 & 102030403020\ 0984624^2 + 250505048000^2 &= 1020304030201\ 015376^2 \\
&& & (4.116) & & (4.124)
\end{aligned}$$

$$\begin{aligned}
0986311^2 + 234000^2 &= 1\ 013689^2 & 0984375^2 + 250000^2 &= 1\ 015625^2 \\
1020\ 0986311^2 + 23634000^2 &= 10201\ 013689^2 & 1020\ 0984375^2 + 25250000^2 &= 10201\ 015625^2 \\
10203020\ 0986311^2 + 2363634000^2 &= 102030201\ 013689^2 & 10203020\ 0984375^2 + 2525250000^2 &= 102030201\ 015625^2 \\
102030403020\ 0986311^2 + 236363634000^2 &= 1020304030201\ 013689^2 & 102030403020\ 0984375^2 + 252525250000^2 &= 1020304030201\ 015625^2 \\
&& & (4.117) & & (4.125)
\end{aligned}$$

$$\begin{aligned}
0986076^2 + 236000^2 &= 1\ 013924^2 & 0984124^2 + 252000^2 &= 1\ 015876^2 \\
1020\ 0986076^2 + 23836000^2 &= 10201\ 013924^2 & 1020\ 0984124^2 + 25452000^2 &= 10201\ 015876^2 \\
10203020\ 0986076^2 + 2383836000^2 &= 102030201\ 013924^2 & 10203020\ 0984124^2 + 2545452000^2 &= 102030201\ 015876^2 \\
102030403020\ 0986076^2 + 238383836000^2 &= 1020304030201\ 013924^2 & 102030403020\ 0984124^2 + 254545452000^2 &= 1020304030201\ 015876^2 \\
&& & (4.118) & & (4.126)
\end{aligned}$$

$$\begin{aligned}
0985839^2 + 238000^2 &= 1\ 014161^2 & 0983871^2 + 254000^2 &= 1\ 016129^2 \\
1020\ 0985839^2 + 24038000^2 &= 10201\ 014161^2 & 1020\ 0983871^2 + 25654000^2 &= 10201\ 016129^2 \\
10203020\ 0985839^2 + 2404038000^2 &= 102030201\ 014161^2 & 10203020\ 0983871^2 + 2565654000^2 &= 102030201\ 016129^2 \\
102030403020\ 0985839^2 + 240404038000^2 &= 1020304030201\ 014161^2 & 102030403020\ 0983871^2 + 256565654000^2 &= 1020304030201\ 016129^2 \\
&& & (4.119) & & (4.127)
\end{aligned}$$

$$\begin{aligned}
0985600^2 + 240000^2 &= 1\ 014400^2 & 0983616^2 + 256000^2 &= 1\ 016384^2 \\
1020\ 0985600^2 + 24240000^2 &= 10201\ 014400^2 & 1020\ 0983616^2 + 25856000^2 &= 10201\ 016384^2 \\
10203020\ 0985600^2 + 2424240000^2 &= 102030201\ 014400^2 & 10203020\ 0983616^2 + 2585856000^2 &= 102030201\ 016384^2 \\
102030403020\ 0985600^2 + 242424240000^2 &= 1020304030201\ 014400^2 & 102030403020\ 0983616^2 + 258585856000^2 &= 1020304030201\ 016384^2 \\
&& & (4.120) & & (4.128)
\end{aligned}$$

$$\begin{aligned}
0985359^2 + 242000^2 &= 1\ 014641^2 & 0983359^2 + 258000^2 &= 1\ 016641^2 \\
1020\ 0985359^2 + 24442000^2 &= 10201\ 014641^2 & 1020\ 0983359^2 + 26058000^2 &= 10201\ 016641^2 \\
10203020\ 0985359^2 + 2444442000^2 &= 102030201\ 014641^2 & 10203020\ 0983359^2 + 2606058000^2 &= 102030201\ 016641^2 \\
102030403020\ 0985359^2 + 244444442000^2 &= 1020304030201\ 014641^2 & 102030403020\ 0983359^2 + 260606058000^2 &= 1020304030201\ 016641^2 \\
&& & (4.121) & & (4.129)
\end{aligned}$$



$$\begin{aligned}
0983100^2 + 260000^2 &= 1016900^2 & 0980956^2 + 276000^2 &= 1019044^2 \\
10200983100^2 + 26260000^2 &= 10201016900^2 & 10200980956^2 + 27876000^2 &= 10201019044^2 \\
102030200983100^2 + 2626260000^2 &= 102030201016900^2 & 102030200980956^2 + 2787876000^2 &= 102030201019044^2 \\
1020304030200983100^2 + 262626260000^2 &= 1020304030201016900^2 & 1020304030200980956^2 + 278787876000^2 &= 1020304030201019044^2 \\
&& & (4.130) & & (4.138)
\end{aligned}$$

$$\begin{aligned}
0982839^2 + 262000^2 &= 1017161^2 & 0980679^2 + 278000^2 &= 1019321^2 \\
10200982839^2 + 26462000^2 &= 10201017161^2 & 10200980679^2 + 28078000^2 &= 10201019321^2 \\
102030200982839^2 + 2646462000^2 &= 102030201017161^2 & 102030200980679^2 + 2808078000^2 &= 102030201019321^2 \\
1020304030200982839^2 + 264646462000^2 &= 1020304030201017161^2 & 1020304030200980679^2 + 280808078000^2 &= 1020304030201019321^2 \\
&& & (4.131) & & (4.139)
\end{aligned}$$

$$\begin{aligned}
0982576^2 + 264000^2 &= 1017424^2 & 0980400^2 + 280000^2 &= 1019600^2 \\
10200982576^2 + 26664000^2 &= 10201017424^2 & 10200980400^2 + 28280000^2 &= 10201019600^2 \\
102030200982576^2 + 2666664000^2 &= 102030201017424^2 & 102030200980400^2 + 2828280000^2 &= 102030201019600^2 \\
1020304030200982576^2 + 266666664000^2 &= 1020304030201017424^2 & 1020304030200980400^2 + 282828280000^2 &= 1020304030201019600^2 \\
&& & (4.132) & & (4.140)
\end{aligned}$$

$$\begin{aligned}
0982311^2 + 266000^2 &= 1017689^2 & 0980119^2 + 282000^2 &= 1019881^2 \\
10200982311^2 + 26866000^2 &= 10201017689^2 & 10200980119^2 + 28482000^2 &= 10201019881^2 \\
102030200982311^2 + 2686866000^2 &= 102030201017689^2 & 102030200980119^2 + 2848482000^2 &= 102030201019881^2 \\
1020304030200982311^2 + 268686866000^2 &= 1020304030201017689^2 & 1020304030200980119^2 + 284848482000^2 &= 1020304030201019881^2 \\
&& & (4.133) & & (4.141)
\end{aligned}$$

$$\begin{aligned}
0982044^2 + 268000^2 &= 1017956^2 & 0979836^2 + 284000^2 &= 1020164^2 \\
10200982044^2 + 27068000^2 &= 10201017956^2 & 10200979836^2 + 28684000^2 &= 10201020164^2 \\
102030200982044^2 + 2707068000^2 &= 102030201017956^2 & 102030200979836^2 + 2868684000^2 &= 102030201020164^2 \\
1020304030200982044^2 + 270707068000^2 &= 1020304030201017956^2 & 1020304030200979836^2 + 286868684000^2 &= 1020304030201020164^2 \\
&& & (4.134) & & (4.142)
\end{aligned}$$

$$\begin{aligned}
0981775^2 + 270000^2 &= 1018225^2 & 0979551^2 + 286000^2 &= 1020449^2 \\
10200981775^2 + 27270000^2 &= 10201018225^2 & 10200979551^2 + 28886000^2 &= 10201020449^2 \\
102030200981775^2 + 2727270000^2 &= 102030201018225^2 & 102030200979551^2 + 2888886000^2 &= 102030201020449^2 \\
1020304030200981775^2 + 272727270000^2 &= 1020304030201018225^2 & 1020304030200979551^2 + 288888886000^2 &= 1020304030201020449^2 \\
&& & (4.135) & & (4.143)
\end{aligned}$$

$$\begin{aligned}
0981504^2 + 272000^2 &= 1018496^2 & 0979264^2 + 288000^2 &= 1020736^2 \\
10200981504^2 + 27472000^2 &= 10201018496^2 & 10200979264^2 + 29088000^2 &= 10201020736^2 \\
102030200981504^2 + 2747472000^2 &= 102030201018496^2 & 102030200979264^2 + 2909088000^2 &= 102030201020736^2 \\
1020304030200981504^2 + 274747472000^2 &= 1020304030201018496^2 & 1020304030200979264^2 + 290909088000^2 &= 1020304030201020736^2 \\
&& & (4.136) & & (4.144)
\end{aligned}$$

$$\begin{aligned}
0981231^2 + 274000^2 &= 1018769^2 & 0978975^2 + 290000^2 &= 1021025^2 \\
10200981231^2 + 27674000^2 &= 10201018769^2 & 10200978975^2 + 29290000^2 &= 10201021025^2 \\
102030200981231^2 + 2767674000^2 &= 102030201018769^2 & 102030200978975^2 + 2929290000^2 &= 102030201021025^2 \\
1020304030200981231^2 + 276767674000^2 &= 1020304030201018769^2 & 1020304030200978975^2 + 292929290000^2 &= 1020304030201021025^2 \\
&& & (4.137) & & (4.145)
\end{aligned}$$

$$\begin{aligned}
& 0978684^2 + 292000^2 = 1\ 021316^2 & 0976284^2 + 308000^2 = 1\ 023716^2 \\
& 1020\ 0978684^2 + 29492000^2 = 10201\ 021316^2 & 1020\ 0976284^2 + 31108000^2 = 10201\ 023716^2 \\
& 10203020\ 0978684^2 + 2949492000^2 = 102030201\ 021316^2 & 10203020\ 0976284^2 + 3111108000^2 = 102030201\ 023716^2 \\
& 102030403020\ 0978684^2 + 294949492000^2 = 1020304030201\ 021316^2 & 102030403020\ 0976284^2 + 311111108000^2 = 1020304030201\ 023716^2 \\
& & (4.146) & & (4.154)
\end{aligned}$$

$$\begin{aligned}
& 0978391^2 + 294000^2 = 1\ 021609^2 & 0975975^2 + 310000^2 = 1\ 024025^2 \\
& 1020\ 0978391^2 + 29694000^2 = 10201\ 021609^2 & 1020\ 0975975^2 + 31310000^2 = 10201\ 024025^2 \\
& 10203020\ 0978391^2 + 2969694000^2 = 102030201\ 021609^2 & 10203020\ 0975975^2 + 3131310000^2 = 102030201\ 024025^2 \\
& 102030403020\ 0978391^2 + 296969694000^2 = 1020304030201\ 021609^2 & 102030403020\ 0975975^2 + 313131310000^2 = 1020304030201\ 024025^2 \\
& & (4.147) & & (4.155)
\end{aligned}$$

$$\begin{aligned}
& 0978096^2 + 296000^2 = 1\ 021904^2 & 0975664^2 + 312000^2 = 1\ 024336^2 \\
& 1020\ 0978096^2 + 29896000^2 = 10201\ 021904^2 & 1020\ 0975664^2 + 31512000^2 = 10201\ 024336^2 \\
& 10203020\ 0978096^2 + 2989896000^2 = 102030201\ 021904^2 & 10203020\ 0975664^2 + 3151512000^2 = 102030201\ 024336^2 \\
& 102030403020\ 0978096^2 + 298989896000^2 = 1020304030201\ 021904^2 & 102030403020\ 0975664^2 + 315151512000^2 = 1020304030201\ 024336^2 \\
& & (4.148) & & (4.156)
\end{aligned}$$

$$\begin{aligned}
& 0977799^2 + 298000^2 = 1\ 022201^2 & 0975351^2 + 314000^2 = 1\ 024649^2 \\
& 1020\ 0977799^2 + 30098000^2 = 10201\ 022201^2 & 1020\ 0975351^2 + 31714000^2 = 10201\ 024649^2 \\
& 10203020\ 0977799^2 + 3010098000^2 = 102030201\ 022201^2 & 10203020\ 0975351^2 + 3171714000^2 = 102030201\ 024649^2 \\
& 102030403020\ 0977799^2 + 301010098000^2 = 1020304030201\ 022201^2 & 102030403020\ 0975351^2 + 317171714000^2 = 1020304030201\ 024649^2 \\
& & (4.149) & & (4.157)
\end{aligned}$$

$$\begin{aligned}
& 0977500^2 + 300000^2 = 1\ 022500^2 & 0975036^2 + 316000^2 = 1\ 024964^2 \\
& 1020\ 0977500^2 + 30300000^2 = 10201\ 022500^2 & 1020\ 0975036^2 + 31916000^2 = 10201\ 024964^2 \\
& 10203020\ 0977500^2 + 3030300000^2 = 102030201\ 022500^2 & 10203020\ 0975036^2 + 3191916000^2 = 102030201\ 024964^2 \\
& 102030403020\ 0977500^2 + 303030300000^2 = 1020304030201\ 022500^2 & 102030403020\ 0975036^2 + 319191916000^2 = 1020304030201\ 024964^2 \\
& & (4.150) & & (4.158)
\end{aligned}$$

$$\begin{aligned}
& 0977199^2 + 302000^2 = 1\ 022801^2 & 0974719^2 + 318000^2 = 1\ 025281^2 \\
& 1020\ 0977199^2 + 30502000^2 = 10201\ 022801^2 & 1020\ 0974719^2 + 32118000^2 = 10201\ 025281^2 \\
& 10203020\ 0977199^2 + 3050502000^2 = 102030201\ 022801^2 & 10203020\ 0974719^2 + 3212118000^2 = 102030201\ 025281^2 \\
& 102030403020\ 0977199^2 + 305050502000^2 = 1020304030201\ 022801^2 & 102030403020\ 0974719^2 + 321212118000^2 = 1020304030201\ 025281^2 \\
& & (4.151) & & (4.159)
\end{aligned}$$

$$\begin{aligned}
& 0976896^2 + 304000^2 = 1\ 023104^2 & 0974400^2 + 320000^2 = 1\ 025600^2 \\
& 1020\ 0976896^2 + 30704000^2 = 10201\ 023104^2 & 1020\ 0974400^2 + 32320000^2 = 10201\ 025600^2 \\
& 10203020\ 0976896^2 + 3070704000^2 = 102030201\ 023104^2 & 10203020\ 0974400^2 + 3232320000^2 = 102030201\ 025600^2 \\
& 102030403020\ 0976896^2 + 307070704000^2 = 1020304030201\ 023104^2 & 102030403020\ 0974400^2 + 323232320000^2 = 1020304030201\ 025600^2 \\
& & (4.152) & & (4.160)
\end{aligned}$$

$$\begin{aligned}
& 0976591^2 + 306000^2 = 1\ 023409^2 & 0974079^2 + 322000^2 = 1\ 025921^2 \\
& 1020\ 0976591^2 + 30906000^2 = 10201\ 023409^2 & 1020\ 0974079^2 + 32522000^2 = 10201\ 025921^2 \\
& 10203020\ 0976591^2 + 3090906000^2 = 102030201\ 023409^2 & 10203020\ 0974079^2 + 3252522000^2 = 102030201\ 025921^2 \\
& 102030403020\ 0976591^2 + 309090906000^2 = 1020304030201\ 023409^2 & 102030403020\ 0974079^2 + 325252522000^2 = 1020304030201\ 025921^2 \\
& & (4.153) & & (4.161)
\end{aligned}$$

$$\begin{aligned}
& 0973756^2 + 324000^2 = 1\ 026244^2 & 0971100^2 + 340000^2 = 1\ 028900^2 \\
& 1020\ 0973756^2 + 32724000^2 = 10201\ 026244^2 & 1020\ 0971100^2 + 34340000^2 = 10201\ 028900^2 \\
& 10203020\ 0973756^2 + 3272724000^2 = 102030201\ 026244^2 & 10203020\ 0971100^2 + 3434340000^2 = 102030201\ 028900^2 \\
& 102030403020\ 0973756^2 + 327272724000^2 = 1020304030201\ 026244^2 & 102030403020\ 0971100^2 + 343434340000^2 = 1020304030201\ 028900^2 \\
& & & (4.162) & & (4.170)
\end{aligned}$$

$$\begin{aligned}
& 0973431^2 + 326000^2 = 1\ 026569^2 & 0970759^2 + 342000^2 = 1\ 029241^2 \\
& 1020\ 0973431^2 + 32926000^2 = 10201\ 026569^2 & 1020\ 0970759^2 + 34542000^2 = 10201\ 029241^2 \\
& 10203020\ 0973431^2 + 3292926000^2 = 102030201\ 026569^2 & 10203020\ 0970759^2 + 3454542000^2 = 102030201\ 029241^2 \\
& 102030403020\ 0973431^2 + 329292926000^2 = 1020304030201\ 026569^2 & 102030403020\ 0970759^2 + 345454542000^2 = 1020304030201\ 029241^2 \\
& & & (4.163) & & (4.171)
\end{aligned}$$

$$\begin{aligned}
& 0973104^2 + 328000^2 = 1\ 026896^2 & 0970416^2 + 344000^2 = 1\ 029584^2 \\
& 1020\ 0973104^2 + 33128000^2 = 10201\ 026896^2 & 1020\ 0970416^2 + 34744000^2 = 10201\ 029584^2 \\
& 10203020\ 0973104^2 + 3313128000^2 = 102030201\ 026896^2 & 10203020\ 0970416^2 + 3474744000^2 = 102030201\ 029584^2 \\
& 102030403020\ 0973104^2 + 331313128000^2 = 1020304030201\ 026896^2 & 102030403020\ 0970416^2 + 347474744000^2 = 1020304030201\ 029584^2 \\
& & & (4.164) & & (4.172)
\end{aligned}$$

$$\begin{aligned}
& 0972775^2 + 330000^2 = 1\ 027225^2 & 0970071^2 + 346000^2 = 1\ 029929^2 \\
& 1020\ 0972775^2 + 33330000^2 = 10201\ 027225^2 & 1020\ 0970071^2 + 34946000^2 = 10201\ 029929^2 \\
& 10203020\ 0972775^2 + 3333330000^2 = 102030201\ 027225^2 & 10203020\ 0970071^2 + 3494946000^2 = 102030201\ 029929^2 \\
& 102030403020\ 0972775^2 + 333333330000^2 = 1020304030201\ 027225^2 & 102030403020\ 0970071^2 + 349494946000^2 = 1020304030201\ 029929^2 \\
& & & (4.165) & & (4.173)
\end{aligned}$$

$$\begin{aligned}
& 0972444^2 + 332000^2 = 1\ 027556^2 & 0969724^2 + 348000^2 = 1\ 030276^2 \\
& 1020\ 0972444^2 + 33532000^2 = 10201\ 027556^2 & 1020\ 0969724^2 + 35148000^2 = 10201\ 030276^2 \\
& 10203020\ 0972444^2 + 3353532000^2 = 102030201\ 027556^2 & 10203020\ 0969724^2 + 3515148000^2 = 102030201\ 030276^2 \\
& 102030403020\ 0972444^2 + 335353532000^2 = 1020304030201\ 027556^2 & 102030403020\ 0969724^2 + 351515148000^2 = 1020304030201\ 030276^2 \\
& & & (4.166) & & (4.174)
\end{aligned}$$

$$\begin{aligned}
& 0972111^2 + 334000^2 = 1\ 027889^2 & 0969375^2 + 350000^2 = 1\ 030625^2 \\
& 1020\ 0972111^2 + 33734000^2 = 10201\ 027889^2 & 1020\ 0969375^2 + 35350000^2 = 10201\ 030625^2 \\
& 10203020\ 0972111^2 + 3373734000^2 = 102030201\ 027889^2 & 10203020\ 0969375^2 + 3535350000^2 = 102030201\ 030625^2 \\
& 102030403020\ 0972111^2 + 337373734000^2 = 1020304030201\ 027889^2 & 102030403020\ 0969375^2 + 353535350000^2 = 1020304030201\ 030625^2 \\
& & & (4.167) & & (4.175)
\end{aligned}$$

$$\begin{aligned}
& 0971776^2 + 336000^2 = 1\ 028224^2 & 0969024^2 + 352000^2 = 1\ 030976^2 \\
& 1020\ 0971776^2 + 33936000^2 = 10201\ 028224^2 & 1020\ 0969024^2 + 35552000^2 = 10201\ 030976^2 \\
& 10203020\ 0971776^2 + 3393936000^2 = 102030201\ 028224^2 & 10203020\ 0969024^2 + 3555552000^2 = 102030201\ 030976^2 \\
& 102030403020\ 0971776^2 + 339393936000^2 = 1020304030201\ 028224^2 & 102030403020\ 0969024^2 + 355555552000^2 = 1020304030201\ 030976^2 \\
& & & (4.168) & & (4.176)
\end{aligned}$$

$$\begin{aligned}
& 0971439^2 + 338000^2 = 1\ 028561^2 & 0968671^2 + 354000^2 = 1\ 031329^2 \\
& 1020\ 0971439^2 + 34138000^2 = 10201\ 028561^2 & 1020\ 0968671^2 + 35754000^2 = 10201\ 031329^2 \\
& 10203020\ 0971439^2 + 3414138000^2 = 102030201\ 028561^2 & 10203020\ 0968671^2 + 3575754000^2 = 102030201\ 031329^2 \\
& 102030403020\ 0971439^2 + 341414138000^2 = 1020304030201\ 028561^2 & 102030403020\ 0968671^2 + 357575754000^2 = 1020304030201\ 031329^2 \\
& & & (4.169) & & (4.177)
\end{aligned}$$

$$\begin{array}{lcl}
0968316^2 + 356000^2 & = & 1\ 031684^2 \\
1020\ 0968316^2 + 35956000^2 & = & 10201\ 031684^2 \\
10203020\ 0968316^2 + 3595956000^2 & = & 102030201\ 031684^2 \\
102030403020\ 0968316^2 + 359595956000^2 & = & 1020304030201\ 031684^2 \\
& & (4.178)
\end{array}
\qquad
\begin{array}{lcl}
0965404^2 + 372000^2 & = & 1\ 034596^2 \\
1020\ 0965404^2 + 37572000^2 & = & 10201\ 034596^2 \\
10203020\ 0965404^2 + 3757572000^2 & = & 102030201\ 034596^2 \\
102030403020\ 0965404^2 + 375757572000^2 & = & 1020304030201\ 034596^2 \\
& & (4.186)
\end{array}$$

$$\begin{array}{lcl}
0967959^2 + 358000^2 & = & 1\ 032041^2 \\
1020\ 0967959^2 + 36158000^2 & = & 10201\ 032041^2 \\
10203020\ 0967959^2 + 3616158000^2 & = & 102030201\ 032041^2 \\
102030403020\ 0967959^2 + 361616158000^2 & = & 1020304030201\ 032041^2 \\
& & (4.179)
\end{array}
\qquad
\begin{array}{lcl}
0965031^2 + 374000^2 & = & 1\ 034969^2 \\
1020\ 0965031^2 + 37774000^2 & = & 10201\ 034969^2 \\
10203020\ 0965031^2 + 3777774000^2 & = & 102030201\ 034969^2 \\
102030403020\ 0965031^2 + 377777774000^2 & = & 1020304030201\ 034969^2 \\
& & (4.187)
\end{array}$$

$$\begin{array}{lcl}
0967600^2 + 360000^2 & = & 1\ 032400^2 \\
1020\ 0967600^2 + 36360000^2 & = & 10201\ 032400^2 \\
10203020\ 0967600^2 + 3636360000^2 & = & 102030201\ 032400^2 \\
102030403020\ 0967600^2 + 363636360000^2 & = & 1020304030201\ 032400^2 \\
& & (4.180)
\end{array}
\qquad
\begin{array}{lcl}
0964656^2 + 376000^2 & = & 1\ 035344^2 \\
1020\ 0964656^2 + 37976000^2 & = & 10201\ 035344^2 \\
10203020\ 0964656^2 + 3797976000^2 & = & 102030201\ 035344^2 \\
102030403020\ 0964656^2 + 379797976000^2 & = & 1020304030201\ 035344^2 \\
& & (4.188)
\end{array}$$

$$\begin{array}{lcl}
0967239^2 + 362000^2 & = & 1\ 032761^2 \\
1020\ 0967239^2 + 36562000^2 & = & 10201\ 032761^2 \\
10203020\ 0967239^2 + 3656562000^2 & = & 102030201\ 032761^2 \\
102030403020\ 0967239^2 + 365656562000^2 & = & 1020304030201\ 032761^2 \\
& & (4.181)
\end{array}
\qquad
\begin{array}{lcl}
0964279^2 + 378000^2 & = & 1\ 035721^2 \\
1020\ 0964279^2 + 38178000^2 & = & 10201\ 035721^2 \\
10203020\ 0964279^2 + 3818178000^2 & = & 102030201\ 035721^2 \\
102030403020\ 0964279^2 + 381818178000^2 & = & 1020304030201\ 035721^2 \\
& & (4.189)
\end{array}$$

$$\begin{array}{lcl}
0966876^2 + 364000^2 & = & 1\ 033124^2 \\
1020\ 0966876^2 + 36764000^2 & = & 10201\ 033124^2 \\
10203020\ 0966876^2 + 3676764000^2 & = & 102030201\ 033124^2 \\
102030403020\ 0966876^2 + 367676764000^2 & = & 1020304030201\ 033124^2 \\
& & (4.182)
\end{array}
\qquad
\begin{array}{lcl}
0963900^2 + 380000^2 & = & 1\ 036100^2 \\
1020\ 0963900^2 + 38380000^2 & = & 10201\ 036100^2 \\
10203020\ 0963900^2 + 3838380000^2 & = & 102030201\ 036100^2 \\
102030403020\ 0963900^2 + 383838380000^2 & = & 1020304030201\ 036100^2 \\
& & (4.190)
\end{array}$$

$$\begin{array}{lcl}
0966511^2 + 366000^2 & = & 1\ 033489^2 \\
1020\ 0966511^2 + 36966000^2 & = & 10201\ 033489^2 \\
10203020\ 0966511^2 + 3696966000^2 & = & 102030201\ 033489^2 \\
102030403020\ 0966511^2 + 369696966000^2 & = & 1020304030201\ 033489^2 \\
& & (4.183)
\end{array}
\qquad
\begin{array}{lcl}
0963519^2 + 382000^2 & = & 1\ 036481^2 \\
1020\ 0963519^2 + 38582000^2 & = & 10201\ 036481^2 \\
10203020\ 0963519^2 + 3858582000^2 & = & 102030201\ 036481^2 \\
102030403020\ 0963519^2 + 385858582000^2 & = & 1020304030201\ 036481^2 \\
& & (4.191)
\end{array}$$

$$\begin{array}{lcl}
0966144^2 + 368000^2 & = & 1\ 033856^2 \\
1020\ 0966144^2 + 37168000^2 & = & 10201\ 033856^2 \\
10203020\ 0966144^2 + 3717168000^2 & = & 102030201\ 033856^2 \\
102030403020\ 0966144^2 + 371717168000^2 & = & 1020304030201\ 033856^2 \\
& & (4.184)
\end{array}
\qquad
\begin{array}{lcl}
0963136^2 + 384000^2 & = & 1\ 036864^2 \\
1020\ 0963136^2 + 38784000^2 & = & 10201\ 036864^2 \\
10203020\ 0963136^2 + 3878784000^2 & = & 102030201\ 036864^2 \\
102030403020\ 0963136^2 + 387878784000^2 & = & 1020304030201\ 036864^2 \\
& & (4.192)
\end{array}$$

$$\begin{array}{lcl}
0965775^2 + 370000^2 & = & 1\ 034225^2 \\
1020\ 0965775^2 + 37370000^2 & = & 10201\ 034225^2 \\
10203020\ 0965775^2 + 3737370000^2 & = & 102030201\ 034225^2 \\
102030403020\ 0965775^2 + 373737370000^2 & = & 1020304030201\ 034225^2 \\
& & (4.185)
\end{array}
\qquad
\begin{array}{lcl}
0962751^2 + 386000^2 & = & 1\ 037249^2 \\
1020\ 0962751^2 + 38986000^2 & = & 10201\ 037249^2 \\
10203020\ 0962751^2 + 3898986000^2 & = & 102030201\ 037249^2 \\
102030403020\ 0962751^2 + 389898986000^2 & = & 1020304030201\ 037249^2 \\
& & (4.193)
\end{array}$$

$$\begin{array}{lcl}
 0962364^2 + 388000^2 & = & 1\ 037636^2 \\
 1020\ 0962364^2 + 39188000^2 & = & 10201\ 037636^2 \\
 10203020\ 0962364^2 + 3919188000^2 & = & 102030201\ 037636^2 \\
 102030403020\ 0962364^2 + 391919188000^2 & = & 1020304030201\ 037636^2 \\
 & & (4.194)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0961191^2 + 394000^2 & = & 1\ 038809^2 \\
 1020\ 0961191^2 + 39794000^2 & = & 10201\ 038809^2 \\
 10203020\ 0961191^2 + 3979794000^2 & = & 102030201\ 038809^2 \\
 102030403020\ 0961191^2 + 397979794000^2 & = & 1020304030201\ 038809^2 \\
 & & (4.197)
 \end{array}$$

$$\begin{array}{lcl}
 0961975^2 + 390000^2 & = & 1\ 038025^2 \\
 1020\ 0961975^2 + 39390000^2 & = & 10201\ 038025^2 \\
 10203020\ 0961975^2 + 3939390000^2 & = & 102030201\ 038025^2 \\
 102030403020\ 0961975^2 + 393939390000^2 & = & 1020304030201\ 038025^2 \\
 & & (4.195)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0960796^2 + 396000^2 & = & 1\ 039204^2 \\
 1020\ 0960796^2 + 39996000^2 & = & 10201\ 039204^2 \\
 10203020\ 0960796^2 + 3999996000^2 & = & 102030201\ 039204^2 \\
 102030403020\ 0960796^2 + 399999996000^2 & = & 1020304030201\ 039204^2 \\
 & & (4.198)
 \end{array}$$

$$\begin{array}{lcl}
 0961584^2 + 392000^2 & = & 1\ 038416^2 \\
 1020\ 0961584^2 + 39592000^2 & = & 10201\ 038416^2 \\
 10203020\ 0961584^2 + 3959592000^2 & = & 102030201\ 038416^2 \\
 102030403020\ 0961584^2 + 395959592000^2 & = & 1020304030201\ 038416^2 \\
 & & (4.196)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0960399^2 + 398000^2 & = & 1\ 039601^2 \\
 1020\ 0960399^2 + 40198000^2 & = & 10201\ 039601^2 \\
 10203020\ 0960399^2 + 4020198000^2 & = & 102030201\ 039601^2 \\
 102030403020\ 0960399^2 + 402020198000^2 & = & 1020304030201\ 039601^2 \\
 & & (4.199)
 \end{array}$$

### 4.3 For $n = 200, 201, 201, \dots, 297, 298, 299$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 200, 201, 201, \dots, 297, 298, 299$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$$\begin{array}{lcl}
 0960000^2 + 400000^2 & = & 1\ 040000^2 \\
 1020\ 0960000^2 + 40400000^2 & = & 10201\ 040000^2 \\
 10203020\ 0960000^2 + 4040400000^2 & = & 102030201\ 040000^2 \\
 102030403020\ 0960000^2 + 404040400000^2 & = & 1020304030201\ 040000^2 \\
 & & (4.200)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0958791^2 + 406000^2 & = & 1\ 041209^2 \\
 1020\ 0958791^2 + 41006000^2 & = & 10201\ 041209^2 \\
 10203020\ 0958791^2 + 4101006000^2 & = & 102030201\ 041209^2 \\
 102030403020\ 0958791^2 + 410101006000^2 & = & 1020304030201\ 041209^2 \\
 & & (4.203)
 \end{array}$$

$$\begin{array}{lcl}
 0959599^2 + 402000^2 & = & 1\ 040401^2 \\
 1020\ 0959599^2 + 40602000^2 & = & 10201\ 040401^2 \\
 10203020\ 0959599^2 + 4060602000^2 & = & 102030201\ 040401^2 \\
 102030403020\ 0959599^2 + 406060602000^2 & = & 1020304030201\ 040401^2 \\
 & & (4.201)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0958384^2 + 408000^2 & = & 1\ 041616^2 \\
 1020\ 0958384^2 + 41208000^2 & = & 10201\ 041616^2 \\
 10203020\ 0958384^2 + 4121208000^2 & = & 102030201\ 041616^2 \\
 102030403020\ 0958384^2 + 412121208000^2 & = & 1020304030201\ 041616^2 \\
 & & (4.204)
 \end{array}$$

$$\begin{array}{lcl}
 0959196^2 + 404000^2 & = & 1\ 040804^2 \\
 1020\ 0959196^2 + 40804000^2 & = & 10201\ 040804^2 \\
 10203020\ 0959196^2 + 4080804000^2 & = & 102030201\ 040804^2 \\
 102030403020\ 0959196^2 + 408080804000^2 & = & 1020304030201\ 040804^2 \\
 & & (4.202)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0957975^2 + 410000^2 & = & 1\ 042025^2 \\
 1020\ 0957975^2 + 41410000^2 & = & 10201\ 042025^2 \\
 10203020\ 0957975^2 + 4141410000^2 & = & 102030201\ 042025^2 \\
 102030403020\ 0957975^2 + 414141410000^2 & = & 1020304030201\ 042025^2 \\
 & & (4.205)
 \end{array}$$

$$\begin{array}{lcl}
0957564^2 + 412000^2 & = & 1\ 042436^2 \\
1020\ 0957564^2 + 41612000^2 & = & 10201\ 042436^2 \\
10203020\ 0957564^2 + 4161612000^2 & = & 102030201\ 042436^2 \\
102030403020\ 0957564^2 + 416161612000^2 & = & 1020304030201\ 042436^2 \\
& & (4.206)
\end{array}
\qquad
\begin{array}{lcl}
0954204^2 + 428000^2 & = & 1\ 045796^2 \\
1020\ 0954204^2 + 43228000^2 & = & 10201\ 045796^2 \\
10203020\ 0954204^2 + 4323228000^2 & = & 102030201\ 045796^2 \\
102030403020\ 0954204^2 + 432323228000^2 & = & 1020304030201\ 045796^2 \\
& & (4.214)
\end{array}$$

$$\begin{array}{lcl}
0957151^2 + 414000^2 & = & 1\ 042849^2 \\
1020\ 0957151^2 + 41814000^2 & = & 10201\ 042849^2 \\
10203020\ 0957151^2 + 4181814000^2 & = & 102030201\ 042849^2 \\
102030403020\ 0957151^2 + 418181814000^2 & = & 1020304030201\ 042849^2 \\
& & (4.207)
\end{array}
\qquad
\begin{array}{lcl}
0953775^2 + 430000^2 & = & 1\ 046225^2 \\
1020\ 0953775^2 + 43430000^2 & = & 10201\ 046225^2 \\
10203020\ 0953775^2 + 4343430000^2 & = & 102030201\ 046225^2 \\
102030403020\ 0953775^2 + 434343430000^2 & = & 1020304030201\ 046225^2 \\
& & (4.215)
\end{array}$$

$$\begin{array}{lcl}
0956736^2 + 416000^2 & = & 1\ 043264^2 \\
1020\ 0956736^2 + 42016000^2 & = & 10201\ 043264^2 \\
10203020\ 0956736^2 + 4202016000^2 & = & 102030201\ 043264^2 \\
102030403020\ 0956736^2 + 420202016000^2 & = & 1020304030201\ 043264^2 \\
& & (4.208)
\end{array}
\qquad
\begin{array}{lcl}
0953344^2 + 432000^2 & = & 1\ 046656^2 \\
1020\ 0953344^2 + 43632000^2 & = & 10201\ 046656^2 \\
10203020\ 0953344^2 + 4363632000^2 & = & 102030201\ 046656^2 \\
102030403020\ 0953344^2 + 436363632000^2 & = & 1020304030201\ 046656^2 \\
& & (4.216)
\end{array}$$

$$\begin{array}{lcl}
0956319^2 + 418000^2 & = & 1\ 043681^2 \\
1020\ 0956319^2 + 42218000^2 & = & 10201\ 043681^2 \\
10203020\ 0956319^2 + 4222218000^2 & = & 102030201\ 043681^2 \\
102030403020\ 0956319^2 + 422222218000^2 & = & 1020304030201\ 043681^2 \\
& & (4.209)
\end{array}
\qquad
\begin{array}{lcl}
0952911^2 + 434000^2 & = & 1\ 047089^2 \\
1020\ 0952911^2 + 43834000^2 & = & 10201\ 047089^2 \\
10203020\ 0952911^2 + 4383834000^2 & = & 102030201\ 047089^2 \\
102030403020\ 0952911^2 + 438383834000^2 & = & 1020304030201\ 047089^2 \\
& & (4.217)
\end{array}$$

$$\begin{array}{lcl}
0955900^2 + 420000^2 & = & 1\ 044100^2 \\
1020\ 0955900^2 + 42420000^2 & = & 10201\ 044100^2 \\
10203020\ 0955900^2 + 4242420000^2 & = & 102030201\ 044100^2 \\
102030403020\ 0955900^2 + 424242420000^2 & = & 1020304030201\ 044100^2 \\
& & (4.210)
\end{array}
\qquad
\begin{array}{lcl}
0952476^2 + 436000^2 & = & 1\ 047524^2 \\
1020\ 0952476^2 + 44036000^2 & = & 10201\ 047524^2 \\
10203020\ 0952476^2 + 4404036000^2 & = & 102030201\ 047524^2 \\
102030403020\ 0952476^2 + 440404036000^2 & = & 1020304030201\ 047524^2 \\
& & (4.218)
\end{array}$$

$$\begin{array}{lcl}
0955479^2 + 422000^2 & = & 1\ 044521^2 \\
1020\ 0955479^2 + 42622000^2 & = & 10201\ 044521^2 \\
10203020\ 0955479^2 + 4262622000^2 & = & 102030201\ 044521^2 \\
102030403020\ 0955479^2 + 426262622000^2 & = & 1020304030201\ 044521^2 \\
& & (4.211)
\end{array}
\qquad
\begin{array}{lcl}
0952039^2 + 438000^2 & = & 1\ 047961^2 \\
1020\ 0952039^2 + 44238000^2 & = & 10201\ 047961^2 \\
10203020\ 0952039^2 + 4424238000^2 & = & 102030201\ 047961^2 \\
102030403020\ 0952039^2 + 442424238000^2 & = & 1020304030201\ 047961^2 \\
& & (4.219)
\end{array}$$

$$\begin{array}{lcl}
0955056^2 + 424000^2 & = & 1\ 044944^2 \\
1020\ 0955056^2 + 42824000^2 & = & 10201\ 044944^2 \\
10203020\ 0955056^2 + 4282824000^2 & = & 102030201\ 044944^2 \\
102030403020\ 0955056^2 + 428282824000^2 & = & 1020304030201\ 044944^2 \\
& & (4.212)
\end{array}
\qquad
\begin{array}{lcl}
0951600^2 + 440000^2 & = & 1\ 048400^2 \\
1020\ 0951600^2 + 44440000^2 & = & 10201\ 048400^2 \\
10203020\ 0951600^2 + 4444440000^2 & = & 102030201\ 048400^2 \\
102030403020\ 0951600^2 + 444444440000^2 & = & 1020304030201\ 048400^2 \\
& & (4.220)
\end{array}$$

$$\begin{array}{lcl}
0954631^2 + 426000^2 & = & 1\ 045369^2 \\
1020\ 0954631^2 + 43026000^2 & = & 10201\ 045369^2 \\
10203020\ 0954631^2 + 4303026000^2 & = & 102030201\ 045369^2 \\
102030403020\ 0954631^2 + 430303026000^2 & = & 1020304030201\ 045369^2 \\
& & (4.213)
\end{array}
\qquad
\begin{array}{lcl}
0951159^2 + 442000^2 & = & 1\ 048841^2 \\
1020\ 0951159^2 + 44642000^2 & = & 10201\ 048841^2 \\
10203020\ 0951159^2 + 4464642000^2 & = & 102030201\ 048841^2 \\
102030403020\ 0951159^2 + 446464642000^2 & = & 1020304030201\ 048841^2 \\
& & (4.221)
\end{array}$$

$$\begin{array}{lcl}
0950716^2 + 444000^2 & = & 1\ 049284^2 \\
1020\ 0950716^2 + 44844000^2 & = & 10201\ 049284^2 \\
10203020\ 0950716^2 + 4484844000^2 & = & 102030201\ 049284^2 \\
102030403020\ 0950716^2 + 448484844000^2 & = & 1020304030201\ 049284^2 \\
& & (4.222)
\end{array}
\qquad
\begin{array}{lcl}
0947100^2 + 460000^2 & = & 1\ 052900^2 \\
1020\ 0947100^2 + 46460000^2 & = & 10201\ 052900^2 \\
10203020\ 0947100^2 + 4646460000^2 & = & 102030201\ 052900^2 \\
102030403020\ 0947100^2 + 464646460000^2 & = & 1020304030201\ 052900^2 \\
& & (4.230)
\end{array}$$

$$\begin{array}{lcl}
0950271^2 + 446000^2 & = & 1\ 049729^2 \\
1020\ 0950271^2 + 45046000^2 & = & 10201\ 049729^2 \\
10203020\ 0950271^2 + 4505046000^2 & = & 102030201\ 049729^2 \\
102030403020\ 0950271^2 + 450505046000^2 & = & 1020304030201\ 049729^2 \\
& & (4.223)
\end{array}
\qquad
\begin{array}{lcl}
0946639^2 + 462000^2 & = & 1\ 053361^2 \\
1020\ 0946639^2 + 46662000^2 & = & 10201\ 053361^2 \\
10203020\ 0946639^2 + 4666662000^2 & = & 102030201\ 053361^2 \\
102030403020\ 0946639^2 + 466666662000^2 & = & 1020304030201\ 053361^2 \\
& & (4.231)
\end{array}$$

$$\begin{array}{lcl}
0949824^2 + 448000^2 & = & 1\ 050176^2 \\
1020\ 0949824^2 + 45248000^2 & = & 10201\ 050176^2 \\
10203020\ 0949824^2 + 4525248000^2 & = & 102030201\ 050176^2 \\
102030403020\ 0949824^2 + 452525248000^2 & = & 1020304030201\ 050176^2 \\
& & (4.224)
\end{array}
\qquad
\begin{array}{lcl}
0946176^2 + 464000^2 & = & 1\ 053824^2 \\
1020\ 0946176^2 + 46864000^2 & = & 10201\ 053824^2 \\
10203020\ 0946176^2 + 4686864000^2 & = & 102030201\ 053824^2 \\
102030403020\ 0946176^2 + 468686864000^2 & = & 1020304030201\ 053824^2 \\
& & (4.232)
\end{array}$$

$$\begin{array}{lcl}
0949375^2 + 450000^2 & = & 1\ 050625^2 \\
1020\ 0949375^2 + 45450000^2 & = & 10201\ 050625^2 \\
10203020\ 0949375^2 + 4545450000^2 & = & 102030201\ 050625^2 \\
102030403020\ 0949375^2 + 454545450000^2 & = & 1020304030201\ 050625^2 \\
& & (4.225)
\end{array}
\qquad
\begin{array}{lcl}
0945711^2 + 466000^2 & = & 1\ 054289^2 \\
1020\ 0945711^2 + 47066000^2 & = & 10201\ 054289^2 \\
10203020\ 0945711^2 + 4707066000^2 & = & 102030201\ 054289^2 \\
102030403020\ 0945711^2 + 470707066000^2 & = & 1020304030201\ 054289^2 \\
& & (4.233)
\end{array}$$

$$\begin{array}{lcl}
0948924^2 + 452000^2 & = & 1\ 051076^2 \\
1020\ 0948924^2 + 45652000^2 & = & 10201\ 051076^2 \\
10203020\ 0948924^2 + 4565652000^2 & = & 102030201\ 051076^2 \\
102030403020\ 0948924^2 + 456565652000^2 & = & 1020304030201\ 051076^2 \\
& & (4.226)
\end{array}
\qquad
\begin{array}{lcl}
0945244^2 + 468000^2 & = & 1\ 054756^2 \\
1020\ 0945244^2 + 47268000^2 & = & 10201\ 054756^2 \\
10203020\ 0945244^2 + 4727268000^2 & = & 102030201\ 054756^2 \\
102030403020\ 0945244^2 + 472727268000^2 & = & 1020304030201\ 054756^2 \\
& & (4.234)
\end{array}$$

$$\begin{array}{lcl}
0948471^2 + 454000^2 & = & 1\ 051529^2 \\
1020\ 0948471^2 + 45854000^2 & = & 10201\ 051529^2 \\
10203020\ 0948471^2 + 4585854000^2 & = & 102030201\ 051529^2 \\
102030403020\ 0948471^2 + 458585854000^2 & = & 1020304030201\ 051529^2 \\
& & (4.227)
\end{array}
\qquad
\begin{array}{lcl}
0944775^2 + 470000^2 & = & 1\ 055225^2 \\
1020\ 0944775^2 + 47470000^2 & = & 10201\ 055225^2 \\
10203020\ 0944775^2 + 4747470000^2 & = & 102030201\ 055225^2 \\
102030403020\ 0944775^2 + 474747470000^2 & = & 1020304030201\ 055225^2 \\
& & (4.235)
\end{array}$$

$$\begin{array}{lcl}
0948016^2 + 456000^2 & = & 1\ 051984^2 \\
1020\ 0948016^2 + 46056000^2 & = & 10201\ 051984^2 \\
10203020\ 0948016^2 + 4606056000^2 & = & 102030201\ 051984^2 \\
102030403020\ 0948016^2 + 460606056000^2 & = & 1020304030201\ 051984^2 \\
& & (4.228)
\end{array}
\qquad
\begin{array}{lcl}
0944304^2 + 472000^2 & = & 1\ 055696^2 \\
1020\ 0944304^2 + 47672000^2 & = & 10201\ 055696^2 \\
10203020\ 0944304^2 + 4767672000^2 & = & 102030201\ 055696^2 \\
102030403020\ 0944304^2 + 476767672000^2 & = & 1020304030201\ 055696^2 \\
& & (4.236)
\end{array}$$

$$\begin{array}{lcl}
0947559^2 + 458000^2 & = & 1\ 052441^2 \\
1020\ 0947559^2 + 46258000^2 & = & 10201\ 052441^2 \\
10203020\ 0947559^2 + 4626258000^2 & = & 102030201\ 052441^2 \\
102030403020\ 0947559^2 + 462626258000^2 & = & 1020304030201\ 052441^2 \\
& & (4.229)
\end{array}
\qquad
\begin{array}{lcl}
0943831^2 + 474000^2 & = & 1\ 056169^2 \\
1020\ 0943831^2 + 47874000^2 & = & 10201\ 056169^2 \\
10203020\ 0943831^2 + 4787874000^2 & = & 102030201\ 056169^2 \\
102030403020\ 0943831^2 + 478787874000^2 & = & 1020304030201\ 056169^2 \\
& & (4.237)
\end{array}$$

$$\begin{array}{lcl}
0943356^2 + 476000^2 & = & 1\ 056644^2 \\
1020\ 0943356^2 + 48076000^2 & = & 10201\ 056644^2 \\
10203020\ 0943356^2 + 4808076000^2 & = & 102030201\ 056644^2 \\
102030403020\ 0943356^2 + 480808076000^2 & = & 1020304030201\ 056644^2 \\
& & (4.238)
\end{array}
\qquad
\begin{array}{lcl}
0939484^2 + 492000^2 & = & 1\ 060516^2 \\
1020\ 0939484^2 + 49692000^2 & = & 10201\ 060516^2 \\
10203020\ 0939484^2 + 4969692000^2 & = & 102030201\ 060516^2 \\
102030403020\ 0939484^2 + 496969692000^2 & = & 1020304030201\ 060516^2 \\
& & (4.246)
\end{array}$$

$$\begin{array}{lcl}
0942879^2 + 478000^2 & = & 1\ 057121^2 \\
1020\ 0942879^2 + 48278000^2 & = & 10201\ 057121^2 \\
10203020\ 0942879^2 + 4828278000^2 & = & 102030201\ 057121^2 \\
102030403020\ 0942879^2 + 482828278000^2 & = & 1020304030201\ 057121^2 \\
& & (4.239)
\end{array}
\qquad
\begin{array}{lcl}
0938991^2 + 494000^2 & = & 1\ 061009^2 \\
1020\ 0938991^2 + 49894000^2 & = & 10201\ 061009^2 \\
10203020\ 0938991^2 + 4989894000^2 & = & 102030201\ 061009^2 \\
102030403020\ 0938991^2 + 498989894000^2 & = & 1020304030201\ 061009^2 \\
& & (4.247)
\end{array}$$

$$\begin{array}{lcl}
0942400^2 + 480000^2 & = & 1\ 057600^2 \\
1020\ 0942400^2 + 48480000^2 & = & 10201\ 057600^2 \\
10203020\ 0942400^2 + 4848480000^2 & = & 102030201\ 057600^2 \\
102030403020\ 0942400^2 + 484848480000^2 & = & 1020304030201\ 057600^2 \\
& & (4.240)
\end{array}
\qquad
\begin{array}{lcl}
0938496^2 + 496000^2 & = & 1\ 061504^2 \\
1020\ 0938496^2 + 50096000^2 & = & 10201\ 061504^2 \\
10203020\ 0938496^2 + 5010096000^2 & = & 102030201\ 061504^2 \\
102030403020\ 0938496^2 + 501010096000^2 & = & 1020304030201\ 061504^2 \\
& & (4.248)
\end{array}$$

$$\begin{array}{lcl}
0941919^2 + 482000^2 & = & 1\ 058081^2 \\
1020\ 0941919^2 + 48682000^2 & = & 10201\ 058081^2 \\
10203020\ 0941919^2 + 4868682000^2 & = & 102030201\ 058081^2 \\
102030403020\ 0941919^2 + 486868682000^2 & = & 1020304030201\ 058081^2 \\
& & (4.241)
\end{array}
\qquad
\begin{array}{lcl}
0937999^2 + 498000^2 & = & 1\ 062001^2 \\
1020\ 0937999^2 + 50298000^2 & = & 10201\ 062001^2 \\
10203020\ 0937999^2 + 5030298000^2 & = & 102030201\ 062001^2 \\
102030403020\ 0937999^2 + 503030298000^2 & = & 1020304030201\ 062001^2 \\
& & (4.249)
\end{array}$$

$$\begin{array}{lcl}
0941436^2 + 484000^2 & = & 1\ 058564^2 \\
1020\ 0941436^2 + 48884000^2 & = & 10201\ 058564^2 \\
10203020\ 0941436^2 + 4888884000^2 & = & 102030201\ 058564^2 \\
102030403020\ 0941436^2 + 488888884000^2 & = & 1020304030201\ 058564^2 \\
& & (4.242)
\end{array}
\qquad
\begin{array}{lcl}
0937500^2 + 500000^2 & = & 1\ 062500^2 \\
1020\ 0937500^2 + 50500000^2 & = & 10201\ 062500^2 \\
10203020\ 0937500^2 + 5050500000^2 & = & 102030201\ 062500^2 \\
102030403020\ 0937500^2 + 505050500000^2 & = & 1020304030201\ 062500^2 \\
& & (4.250)
\end{array}$$

$$\begin{array}{lcl}
0940951^2 + 486000^2 & = & 1\ 059049^2 \\
1020\ 0940951^2 + 49086000^2 & = & 10201\ 059049^2 \\
10203020\ 0940951^2 + 4909086000^2 & = & 102030201\ 059049^2 \\
102030403020\ 0940951^2 + 490909086000^2 & = & 1020304030201\ 059049^2 \\
& & (4.243)
\end{array}
\qquad
\begin{array}{lcl}
0936999^2 + 502000^2 & = & 1\ 063001^2 \\
1020\ 0936999^2 + 50702000^2 & = & 10201\ 063001^2 \\
10203020\ 0936999^2 + 5070702000^2 & = & 102030201\ 063001^2 \\
102030403020\ 0936999^2 + 507070702000^2 & = & 1020304030201\ 063001^2 \\
& & (4.251)
\end{array}$$

$$\begin{array}{lcl}
0940464^2 + 488000^2 & = & 1\ 059536^2 \\
1020\ 0940464^2 + 49288000^2 & = & 10201\ 059536^2 \\
10203020\ 0940464^2 + 4929288000^2 & = & 102030201\ 059536^2 \\
102030403020\ 0940464^2 + 492929288000^2 & = & 1020304030201\ 059536^2 \\
& & (4.244)
\end{array}
\qquad
\begin{array}{lcl}
0936496^2 + 504000^2 & = & 1\ 063504^2 \\
1020\ 0936496^2 + 50904000^2 & = & 10201\ 063504^2 \\
10203020\ 0936496^2 + 5090904000^2 & = & 102030201\ 063504^2 \\
102030403020\ 0936496^2 + 509090904000^2 & = & 1020304030201\ 063504^2 \\
& & (4.252)
\end{array}$$

$$\begin{array}{lcl}
0939975^2 + 490000^2 & = & 1\ 060025^2 \\
1020\ 0939975^2 + 49490000^2 & = & 10201\ 060025^2 \\
10203020\ 0939975^2 + 4949490000^2 & = & 102030201\ 060025^2 \\
102030403020\ 0939975^2 + 494949490000^2 & = & 1020304030201\ 060025^2 \\
& & (4.245)
\end{array}
\qquad
\begin{array}{lcl}
0935991^2 + 506000^2 & = & 1\ 064009^2 \\
1020\ 0935991^2 + 51106000^2 & = & 10201\ 064009^2 \\
10203020\ 0935991^2 + 5111106000^2 & = & 102030201\ 064009^2 \\
102030403020\ 0935991^2 + 511111106000^2 & = & 1020304030201\ 064009^2 \\
& & (4.253)
\end{array}$$



$$\begin{array}{lll}
935484^2 + 508000^2 & = & 1\ 064516^2 \\
1020\ 935484^2 + 51308000^2 & = & 10201\ 064516^2 \\
10203020\ 935484^2 + 5131308000^2 & = & 102030201\ 064516^2 \\
102030403020\ 935484^2 + 513131308000^2 & = & 1020304030201\ 064516^2 \\
& & (4.254)
\end{array}
\qquad
\begin{array}{lll}
931356^2 + 524000^2 & = & 1\ 068644^2 \\
1020\ 931356^2 + 52924000^2 & = & 10201\ 068644^2 \\
10203020\ 931356^2 + 5292924000^2 & = & 102030201\ 068644^2 \\
102030403020\ 931356^2 + 529292924000^2 & = & 1020304030201\ 068644^2 \\
& & (4.262)
\end{array}$$

$$\begin{array}{lll}
934975^2 + 510000^2 & = & 1\ 065025^2 \\
1020\ 934975^2 + 51510000^2 & = & 10201\ 065025^2 \\
10203020\ 934975^2 + 5151510000^2 & = & 102030201\ 065025^2 \\
102030403020\ 934975^2 + 515151510000^2 & = & 1020304030201\ 065025^2 \\
& & (4.255)
\end{array}
\qquad
\begin{array}{lll}
930831^2 + 526000^2 & = & 1\ 069169^2 \\
1020\ 930831^2 + 53126000^2 & = & 10201\ 069169^2 \\
10203020\ 930831^2 + 5313126000^2 & = & 102030201\ 069169^2 \\
102030403020\ 930831^2 + 531313126000^2 & = & 1020304030201\ 069169^2 \\
& & (4.263)
\end{array}$$

$$\begin{array}{lll}
934464^2 + 512000^2 & = & 1\ 065536^2 \\
1020\ 934464^2 + 51712000^2 & = & 10201\ 065536^2 \\
10203020\ 934464^2 + 5171712000^2 & = & 102030201\ 065536^2 \\
102030403020\ 934464^2 + 517171712000^2 & = & 1020304030201\ 065536^2 \\
& & (4.256)
\end{array}
\qquad
\begin{array}{lll}
930304^2 + 528000^2 & = & 1\ 069696^2 \\
1020\ 930304^2 + 53328000^2 & = & 10201\ 069696^2 \\
10203020\ 930304^2 + 5333328000^2 & = & 102030201\ 069696^2 \\
102030403020\ 930304^2 + 533333328000^2 & = & 1020304030201\ 069696^2 \\
& & (4.264)
\end{array}$$

$$\begin{array}{lll}
933951^2 + 514000^2 & = & 1\ 066049^2 \\
1020\ 933951^2 + 51914000^2 & = & 10201\ 066049^2 \\
10203020\ 933951^2 + 5191914000^2 & = & 102030201\ 066049^2 \\
102030403020\ 933951^2 + 519191914000^2 & = & 1020304030201\ 066049^2 \\
& & (4.257)
\end{array}
\qquad
\begin{array}{lll}
929775^2 + 530000^2 & = & 1\ 070225^2 \\
1020\ 929775^2 + 53530000^2 & = & 10201\ 070225^2 \\
10203020\ 929775^2 + 5353530000^2 & = & 102030201\ 070225^2 \\
102030403020\ 929775^2 + 535353530000^2 & = & 1020304030201\ 070225^2 \\
& & (4.265)
\end{array}$$

$$\begin{array}{lll}
933436^2 + 516000^2 & = & 1\ 066564^2 \\
1020\ 933436^2 + 52116000^2 & = & 10201\ 066564^2 \\
10203020\ 933436^2 + 5212116000^2 & = & 102030201\ 066564^2 \\
102030403020\ 933436^2 + 521212116000^2 & = & 1020304030201\ 066564^2 \\
& & (4.258)
\end{array}
\qquad
\begin{array}{lll}
929244^2 + 532000^2 & = & 1\ 070756^2 \\
1020\ 929244^2 + 53732000^2 & = & 10201\ 070756^2 \\
10203020\ 929244^2 + 5373732000^2 & = & 102030201\ 070756^2 \\
102030403020\ 929244^2 + 537373732000^2 & = & 1020304030201\ 070756^2 \\
& & (4.266)
\end{array}$$

$$\begin{array}{lll}
932919^2 + 518000^2 & = & 1\ 067081^2 \\
1020\ 932919^2 + 52318000^2 & = & 10201\ 067081^2 \\
10203020\ 932919^2 + 5232318000^2 & = & 102030201\ 067081^2 \\
102030403020\ 932919^2 + 523232318000^2 & = & 1020304030201\ 067081^2 \\
& & (4.259)
\end{array}
\qquad
\begin{array}{lll}
928711^2 + 534000^2 & = & 1\ 071289^2 \\
1020\ 928711^2 + 53934000^2 & = & 10201\ 071289^2 \\
10203020\ 928711^2 + 5393934000^2 & = & 102030201\ 071289^2 \\
102030403020\ 928711^2 + 539393934000^2 & = & 1020304030201\ 071289^2 \\
& & (4.267)
\end{array}$$

$$\begin{array}{lll}
932400^2 + 520000^2 & = & 1\ 067600^2 \\
1020\ 932400^2 + 52520000^2 & = & 10201\ 067600^2 \\
10203020\ 932400^2 + 5252520000^2 & = & 102030201\ 067600^2 \\
102030403020\ 932400^2 + 525252520000^2 & = & 1020304030201\ 067600^2 \\
& & (4.260)
\end{array}
\qquad
\begin{array}{lll}
928176^2 + 536000^2 & = & 1\ 071824^2 \\
1020\ 928176^2 + 54136000^2 & = & 10201\ 071824^2 \\
10203020\ 928176^2 + 5414136000^2 & = & 102030201\ 071824^2 \\
102030403020\ 928176^2 + 541414136000^2 & = & 1020304030201\ 071824^2 \\
& & (4.268)
\end{array}$$

$$\begin{array}{lll}
931879^2 + 522000^2 & = & 1\ 068121^2 \\
1020\ 931879^2 + 52722000^2 & = & 10201\ 068121^2 \\
10203020\ 931879^2 + 5272722000^2 & = & 102030201\ 068121^2 \\
102030403020\ 931879^2 + 527272722000^2 & = & 1020304030201\ 068121^2 \\
& & (4.261)
\end{array}
\qquad
\begin{array}{lll}
927639^2 + 538000^2 & = & 1\ 072361^2 \\
1020\ 927639^2 + 54338000^2 & = & 10201\ 072361^2 \\
10203020\ 927639^2 + 5434338000^2 & = & 102030201\ 072361^2 \\
102030403020\ 927639^2 + 543434338000^2 & = & 1020304030201\ 072361^2 \\
& & (4.269)
\end{array}$$

$$\begin{aligned}
& 0927100^2 + 540000^2 = 1\ 072900^2 & 0922716^2 + 556000^2 = 1\ 077284^2 \\
& 1020\ 0927100^2 + 54540000^2 = 10201\ 072900^2 & 1020\ 0922716^2 + 56156000^2 = 10201\ 077284^2 \\
& 10203020\ 0927100^2 + 5454540000^2 = 102030201\ 072900^2 & 10203020\ 0922716^2 + 5616156000^2 = 102030201\ 077284^2 \\
& 102030403020\ 0927100^2 + 545454540000^2 = 1020304030201\ 072900^2 & 102030403020\ 0922716^2 + 561616156000^2 = 1020304030201\ 077284^2 \\
& & & (4.270) & & (4.278)
\end{aligned}$$

$$\begin{aligned}
& 0926559^2 + 542000^2 = 1\ 073441^2 & 0922159^2 + 558000^2 = 1\ 077841^2 \\
& 1020\ 0926559^2 + 54742000^2 = 10201\ 073441^2 & 1020\ 0922159^2 + 56358000^2 = 10201\ 077841^2 \\
& 10203020\ 0926559^2 + 5474742000^2 = 102030201\ 073441^2 & 10203020\ 0922159^2 + 5636358000^2 = 102030201\ 077841^2 \\
& 102030403020\ 0926559^2 + 547474742000^2 = 1020304030201\ 073441^2 & 102030403020\ 0922159^2 + 563636358000^2 = 1020304030201\ 077841^2 \\
& & & (4.271) & & (4.279)
\end{aligned}$$

$$\begin{aligned}
& 0926016^2 + 544000^2 = 1\ 073984^2 & 0921600^2 + 560000^2 = 1\ 078400^2 \\
& 1020\ 0926016^2 + 54944000^2 = 10201\ 073984^2 & 1020\ 0921600^2 + 56560000^2 = 10201\ 078400^2 \\
& 10203020\ 0926016^2 + 5494944000^2 = 102030201\ 073984^2 & 10203020\ 0921600^2 + 5656560000^2 = 102030201\ 078400^2 \\
& 102030403020\ 0926016^2 + 549494944000^2 = 1020304030201\ 073984^2 & 102030403020\ 0921600^2 + 565656560000^2 = 1020304030201\ 078400^2 \\
& & & (4.272) & & (4.280)
\end{aligned}$$

$$\begin{aligned}
& 0925471^2 + 546000^2 = 1\ 074529^2 & 0921039^2 + 562000^2 = 1\ 078961^2 \\
& 1020\ 0925471^2 + 55146000^2 = 10201\ 074529^2 & 1020\ 0921039^2 + 56762000^2 = 10201\ 078961^2 \\
& 10203020\ 0925471^2 + 5515146000^2 = 102030201\ 074529^2 & 10203020\ 0921039^2 + 5676762000^2 = 102030201\ 078961^2 \\
& 102030403020\ 0925471^2 + 551515146000^2 = 1020304030201\ 074529^2 & 102030403020\ 0921039^2 + 567676762000^2 = 1020304030201\ 078961^2 \\
& & & (4.273) & & (4.281)
\end{aligned}$$

$$\begin{aligned}
& 0924924^2 + 548000^2 = 1\ 075076^2 & 0920476^2 + 564000^2 = 1\ 079524^2 \\
& 1020\ 0924924^2 + 55348000^2 = 10201\ 075076^2 & 1020\ 0920476^2 + 56964000^2 = 10201\ 079524^2 \\
& 10203020\ 0924924^2 + 5535348000^2 = 102030201\ 075076^2 & 10203020\ 0920476^2 + 5696964000^2 = 102030201\ 079524^2 \\
& 102030403020\ 0924924^2 + 553535348000^2 = 1020304030201\ 075076^2 & 102030403020\ 0920476^2 + 569696964000^2 = 1020304030201\ 079524^2 \\
& & & (4.274) & & (4.282)
\end{aligned}$$

$$\begin{aligned}
& 0924375^2 + 550000^2 = 1\ 075625^2 & 0919911^2 + 566000^2 = 1\ 080089^2 \\
& 1020\ 0924375^2 + 55550000^2 = 10201\ 075625^2 & 1020\ 0919911^2 + 57166000^2 = 10201\ 080089^2 \\
& 10203020\ 0924375^2 + 5555550000^2 = 102030201\ 075625^2 & 10203020\ 0919911^2 + 5717166000^2 = 102030201\ 080089^2 \\
& 102030403020\ 0924375^2 + 555555550000^2 = 1020304030201\ 075625^2 & 102030403020\ 0919911^2 + 571717166000^2 = 1020304030201\ 080089^2 \\
& & & (4.275) & & (4.283)
\end{aligned}$$

$$\begin{aligned}
& 0923824^2 + 552000^2 = 1\ 076176^2 & 0919344^2 + 568000^2 = 1\ 080656^2 \\
& 1020\ 0923824^2 + 55752000^2 = 10201\ 076176^2 & 1020\ 0919344^2 + 57368000^2 = 10201\ 080656^2 \\
& 10203020\ 0923824^2 + 5575752000^2 = 102030201\ 076176^2 & 10203020\ 0919344^2 + 5737368000^2 = 102030201\ 080656^2 \\
& 102030403020\ 0923824^2 + 557575752000^2 = 1020304030201\ 076176^2 & 102030403020\ 0919344^2 + 573737368000^2 = 1020304030201\ 080656^2 \\
& & & (4.276) & & (4.284)
\end{aligned}$$

$$\begin{aligned}
& 0923271^2 + 554000^2 = 1\ 076729^2 & 0918775^2 + 570000^2 = 1\ 081225^2 \\
& 1020\ 0923271^2 + 55954000^2 = 10201\ 076729^2 & 1020\ 0918775^2 + 57570000^2 = 10201\ 081225^2 \\
& 10203020\ 0923271^2 + 5595954000^2 = 102030201\ 076729^2 & 10203020\ 0918775^2 + 5757570000^2 = 102030201\ 081225^2 \\
& 102030403020\ 0923271^2 + 559595954000^2 = 1020304030201\ 076729^2 & 102030403020\ 0918775^2 + 575757570000^2 = 1020304030201\ 081225^2 \\
& & & (4.277) & & (4.285)
\end{aligned}$$

$$\begin{array}{lll}
0918204^2 + 572000^2 & = & 1\ 081796^2 \\
1020\ 0918204^2 + 57772000^2 & = & 10201\ 081796^2 \\
10203020\ 0918204^2 + 5777772000^2 & = & 102030201\ 081796^2 \\
102030403020\ 0918204^2 + 57777772000^2 & = & 1020304030201\ 081796^2 \\
& & (4.286)
\end{array}
\qquad
\begin{array}{lll}
0914151^2 + 586000^2 & = & 1\ 085849^2 \\
1020\ 0914151^2 + 59186000^2 & = & 10201\ 085849^2 \\
10203020\ 0914151^2 + 5919186000^2 & = & 102030201\ 085849^2 \\
102030403020\ 0914151^2 + 591919186000^2 & = & 1020304030201\ 085849^2 \\
& & (4.293)
\end{array}$$

$$\begin{array}{lll}
0917631^2 + 574000^2 & = & 1\ 082369^2 \\
1020\ 0917631^2 + 57974000^2 & = & 10201\ 082369^2 \\
10203020\ 0917631^2 + 5797974000^2 & = & 102030201\ 082369^2 \\
102030403020\ 0917631^2 + 579797974000^2 & = & 1020304030201\ 082369^2 \\
& & (4.287)
\end{array}
\qquad
\begin{array}{lll}
0913564^2 + 588000^2 & = & 1\ 086436^2 \\
1020\ 0913564^2 + 59388000^2 & = & 10201\ 086436^2 \\
10203020\ 0913564^2 + 5939388000^2 & = & 102030201\ 086436^2 \\
102030403020\ 0913564^2 + 593939388000^2 & = & 1020304030201\ 086436^2 \\
& & (4.294)
\end{array}$$

$$\begin{array}{lll}
0917056^2 + 576000^2 & = & 1\ 082944^2 \\
1020\ 0917056^2 + 58176000^2 & = & 10201\ 082944^2 \\
10203020\ 0917056^2 + 5818176000^2 & = & 102030201\ 082944^2 \\
102030403020\ 0917056^2 + 581818176000^2 & = & 1020304030201\ 082944^2 \\
& & (4.288)
\end{array}
\qquad
\begin{array}{lll}
0912975^2 + 590000^2 & = & 1\ 087025^2 \\
1020\ 0912975^2 + 59590000^2 & = & 10201\ 087025^2 \\
10203020\ 0912975^2 + 5959590000^2 & = & 102030201\ 087025^2 \\
102030403020\ 0912975^2 + 595959590000^2 & = & 1020304030201\ 087025^2 \\
& & (4.295)
\end{array}$$

$$\begin{array}{lll}
0916479^2 + 578000^2 & = & 1\ 083521^2 \\
1020\ 0916479^2 + 58378000^2 & = & 10201\ 083521^2 \\
10203020\ 0916479^2 + 5838378000^2 & = & 102030201\ 083521^2 \\
102030403020\ 0916479^2 + 583838378000^2 & = & 1020304030201\ 083521^2 \\
& & (4.289)
\end{array}
\qquad
\begin{array}{lll}
0912384^2 + 592000^2 & = & 1\ 087616^2 \\
1020\ 0912384^2 + 59792000^2 & = & 10201\ 087616^2 \\
10203020\ 0912384^2 + 5979792000^2 & = & 102030201\ 087616^2 \\
102030403020\ 0912384^2 + 597979792000^2 & = & 1020304030201\ 087616^2 \\
& & (4.296)
\end{array}$$

$$\begin{array}{lll}
0915900^2 + 580000^2 & = & 1\ 084100^2 \\
1020\ 0915900^2 + 58580000^2 & = & 10201\ 084100^2 \\
10203020\ 0915900^2 + 5858580000^2 & = & 102030201\ 084100^2 \\
102030403020\ 0915900^2 + 585858580000^2 & = & 1020304030201\ 084100^2 \\
& & (4.290)
\end{array}
\qquad
\begin{array}{lll}
0911791^2 + 594000^2 & = & 1\ 088209^2 \\
1020\ 0911791^2 + 59994000^2 & = & 10201\ 088209^2 \\
10203020\ 0911791^2 + 5999994000^2 & = & 102030201\ 088209^2 \\
102030403020\ 0911791^2 + 599999994000^2 & = & 1020304030201\ 088209^2 \\
& & (4.297)
\end{array}$$

$$\begin{array}{lll}
0915319^2 + 582000^2 & = & 1\ 084681^2 \\
1020\ 0915319^2 + 58782000^2 & = & 10201\ 084681^2 \\
10203020\ 0915319^2 + 5878782000^2 & = & 102030201\ 084681^2 \\
102030403020\ 0915319^2 + 587878782000^2 & = & 1020304030201\ 084681^2 \\
& & (4.291)
\end{array}
\qquad
\begin{array}{lll}
0911196^2 + 596000^2 & = & 1\ 088804^2 \\
1020\ 0911196^2 + 60196000^2 & = & 10201\ 088804^2 \\
10203020\ 0911196^2 + 6020196000^2 & = & 102030201\ 088804^2 \\
102030403020\ 0911196^2 + 602020196000^2 & = & 1020304030201\ 088804^2 \\
& & (4.298)
\end{array}$$

$$\begin{array}{lll}
0914736^2 + 584000^2 & = & 1\ 085264^2 \\
1020\ 0914736^2 + 58984000^2 & = & 10201\ 085264^2 \\
10203020\ 0914736^2 + 5898984000^2 & = & 102030201\ 085264^2 \\
102030403020\ 0914736^2 + 589898984000^2 & = & 1020304030201\ 085264^2 \\
& & (4.292)
\end{array}
\qquad
\begin{array}{lll}
0910599^2 + 598000^2 & = & 1\ 089401^2 \\
1020\ 0910599^2 + 60398000^2 & = & 10201\ 089401^2 \\
10203020\ 0910599^2 + 6040398000^2 & = & 102030201\ 089401^2 \\
102030403020\ 0910599^2 + 604040398000^2 & = & 1020304030201\ 089401^2 \\
& & (4.299)
\end{array}$$

#### 4.4 For $n = 300, 301, 301, \dots, 397, 398, 399$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 300, 301, 301, \dots, 397, 398, 399$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$0910000^2 + 600000^2 = 1090000^2$	$0905136^2 + 616000^2 = 1094864^2$
$10200910000^2 + 60600000^2 = 10201090000^2$	$10200905136^2 + 62216000^2 = 10201094864^2$
$102030200910000^2 + 6060600000^2 = 102030201090000^2$	$102030200905136^2 + 6222216000^2 = 102030201094864^2$
$1020304030200910000^2 + 606060600000^2 = 1020304030201090000^2$ (4.300)	$1020304030200905136^2 + 622222216000^2 = 1020304030201094864^2$ (4.308)
$0909399^2 + 602000^2 = 1090601^2$	$0904519^2 + 618000^2 = 1095481^2$
$10200909399^2 + 60802000^2 = 10201090601^2$	$10200904519^2 + 62418000^2 = 10201095481^2$
$102030200909399^2 + 6080802000^2 = 102030201090601^2$	$102030200904519^2 + 6242418000^2 = 102030201095481^2$
$1020304030200909399^2 + 608080802000^2 = 1020304030201090601^2$ (4.301)	$1020304030200904519^2 + 624242418000^2 = 1020304030201095481^2$ (4.309)
$0908796^2 + 604000^2 = 1091204^2$	$0903900^2 + 620000^2 = 1096100^2$
$10200908796^2 + 61004000^2 = 10201091204^2$	$10200903900^2 + 62620000^2 = 10201096100^2$
$102030200908796^2 + 6101004000^2 = 102030201091204^2$	$102030200903900^2 + 6262620000^2 = 102030201096100^2$
$1020304030200908796^2 + 610101004000^2 = 1020304030201091204^2$ (4.302)	$1020304030200903900^2 + 626262620000^2 = 1020304030201096100^2$ (4.310)
$0908191^2 + 606000^2 = 1091809^2$	$0903279^2 + 622000^2 = 1096721^2$
$10200908191^2 + 61206000^2 = 10201091809^2$	$10200903279^2 + 62822000^2 = 10201096721^2$
$102030200908191^2 + 6121206000^2 = 102030201091809^2$	$102030200903279^2 + 6282822000^2 = 102030201096721^2$
$1020304030200908191^2 + 612121206000^2 = 1020304030201091809^2$ (4.303)	$1020304030200903279^2 + 628282822000^2 = 1020304030201096721^2$ (4.311)
$0907584^2 + 608000^2 = 1092416^2$	$0902656^2 + 624000^2 = 1097344^2$
$10200907584^2 + 61408000^2 = 10201092416^2$	$10200902656^2 + 63024000^2 = 10201097344^2$
$102030200907584^2 + 6141408000^2 = 102030201092416^2$	$102030200902656^2 + 6303024000^2 = 102030201097344^2$
$1020304030200907584^2 + 614141408000^2 = 1020304030201092416^2$ (4.304)	$1020304030200902656^2 + 630303024000^2 = 1020304030201097344^2$ (4.312)
$0906975^2 + 610000^2 = 1093025^2$	$0902031^2 + 626000^2 = 1097969^2$
$10200906975^2 + 61610000^2 = 10201093025^2$	$10200902031^2 + 63226000^2 = 10201097969^2$
$102030200906975^2 + 6161610000^2 = 102030201093025^2$	$102030200902031^2 + 6323226000^2 = 102030201097969^2$
$1020304030200906975^2 + 616161610000^2 = 1020304030201093025^2$ (4.305)	$1020304030200902031^2 + 632323226000^2 = 1020304030201097969^2$ (4.313)
$0906364^2 + 612000^2 = 1093636^2$	$0901404^2 + 628000^2 = 1098596^2$
$10200906364^2 + 61812000^2 = 10201093636^2$	$10200901404^2 + 63428000^2 = 10201098596^2$
$102030200906364^2 + 6181812000^2 = 102030201093636^2$	$102030200901404^2 + 6343428000^2 = 102030201098596^2$
$1020304030200906364^2 + 618181812000^2 = 1020304030201093636^2$ (4.306)	$1020304030200901404^2 + 634343428000^2 = 1020304030201098596^2$ (4.314)
$0905751^2 + 614000^2 = 1094249^2$	
$10200905751^2 + 62014000^2 = 10201094249^2$	
$102030200905751^2 + 6202014000^2 = 102030201094249^2$	
$1020304030200905751^2 + 620202014000^2 = 1020304030201094249^2$ (4.307)	

$$\begin{aligned}
0900775^2 + 630000^2 &= 1099225^2 & 0895671^2 + 646000^2 &= 1104329^2 \\
10200900775^2 + 63630000^2 &= 10201099225^2 & 10200895671^2 + 65246000^2 &= 10201104329^2 \\
102030200900775^2 + 6363630000^2 &= 102030201099225^2 & 102030200895671^2 + 6525246000^2 &= 102030201104329^2 \\
1020304030200900775^2 + 636363630000^2 &= 1020304030201099225^2 & 1020304030200895671^2 + 652525246000^2 &= 1020304030201104329^2 \\
&& & (4.315) & & (4.323)
\end{aligned}$$

$$\begin{aligned}
0900144^2 + 632000^2 &= 1099856^2 & 0895024^2 + 648000^2 &= 1104976^2 \\
10200900144^2 + 63832000^2 &= 10201099856^2 & 10200895024^2 + 65448000^2 &= 10201104976^2 \\
102030200900144^2 + 6383832000^2 &= 102030201099856^2 & 102030200895024^2 + 6545448000^2 &= 102030201104976^2 \\
1020304030200900144^2 + 638383832000^2 &= 1020304030201099856^2 & 1020304030200895024^2 + 654545448000^2 &= 1020304030201104976^2 \\
&& & (4.316) & & (4.324)
\end{aligned}$$

$$\begin{aligned}
0899511^2 + 634000^2 &= 1100489^2 & 0894375^2 + 650000^2 &= 1105625^2 \\
10200899511^2 + 64034000^2 &= 10201100489^2 & 10200894375^2 + 65650000^2 &= 10201105625^2 \\
102030200899511^2 + 6404034000^2 &= 102030201100489^2 & 102030200894375^2 + 6565650000^2 &= 102030201105625^2 \\
1020304030200899511^2 + 640404034000^2 &= 1020304030201100489^2 & 1020304030200894375^2 + 656565650000^2 &= 1020304030201105625^2 \\
&& & (4.317) & & (4.325)
\end{aligned}$$

$$\begin{aligned}
0898876^2 + 636000^2 &= 1101124^2 & 0893724^2 + 652000^2 &= 1106276^2 \\
10200898876^2 + 64236000^2 &= 10201101124^2 & 10200893724^2 + 65852000^2 &= 10201106276^2 \\
102030200898876^2 + 6424236000^2 &= 102030201101124^2 & 102030200893724^2 + 6585852000^2 &= 102030201106276^2 \\
1020304030200898876^2 + 642424236000^2 &= 1020304030201101124^2 & 1020304030200893724^2 + 658585852000^2 &= 1020304030201106276^2 \\
&& & (4.318) & & (4.326)
\end{aligned}$$

$$\begin{aligned}
0898239^2 + 638000^2 &= 1101761^2 & 0893071^2 + 654000^2 &= 1106929^2 \\
10200898239^2 + 64438000^2 &= 10201101761^2 & 10200893071^2 + 66054000^2 &= 10201106929^2 \\
102030200898239^2 + 6444438000^2 &= 102030201101761^2 & 102030200893071^2 + 6606054000^2 &= 102030201106929^2 \\
1020304030200898239^2 + 644444438000^2 &= 1020304030201101761^2 & 1020304030200893071^2 + 660606054000^2 &= 1020304030201106929^2 \\
&& & (4.319) & & (4.327)
\end{aligned}$$

$$\begin{aligned}
0897600^2 + 640000^2 &= 1102400^2 & 0892416^2 + 656000^2 &= 1107584^2 \\
10200897600^2 + 64640000^2 &= 10201102400^2 & 10200892416^2 + 66256000^2 &= 10201107584^2 \\
102030200897600^2 + 6464640000^2 &= 102030201102400^2 & 102030200892416^2 + 6626256000^2 &= 102030201107584^2 \\
1020304030200897600^2 + 646464640000^2 &= 1020304030201102400^2 & 1020304030200892416^2 + 662626256000^2 &= 1020304030201107584^2 \\
&& & (4.320) & & (4.328)
\end{aligned}$$

$$\begin{aligned}
0896959^2 + 642000^2 &= 1103041^2 & 0891759^2 + 658000^2 &= 1108241^2 \\
10200896959^2 + 64842000^2 &= 10201103041^2 & 10200891759^2 + 66458000^2 &= 10201108241^2 \\
102030200896959^2 + 6484842000^2 &= 102030201103041^2 & 102030200891759^2 + 6646458000^2 &= 102030201108241^2 \\
1020304030200896959^2 + 648484842000^2 &= 1020304030201103041^2 & 1020304030200891759^2 + 664646458000^2 &= 1020304030201108241^2 \\
&& & (4.321) & & (4.329)
\end{aligned}$$

$$\begin{aligned}
0896316^2 + 644000^2 &= 1103684^2 & 0891100^2 + 660000^2 &= 1108900^2 \\
10200896316^2 + 65044000^2 &= 10201103684^2 & 10200891100^2 + 66660000^2 &= 10201108900^2 \\
102030200896316^2 + 6505044000^2 &= 102030201103684^2 & 102030200891100^2 + 6666660000^2 &= 102030201108900^2 \\
1020304030200896316^2 + 650505044000^2 &= 1020304030201103684^2 & 1020304030200891100^2 + 666666660000^2 &= 1020304030201108900^2 \\
&& & (4.322) & & (4.330)
\end{aligned}$$

$$\begin{aligned}
0890439^2 + 662000^2 &= \mathbf{1} 109561^2 & 0885079^2 + 678000^2 &= \mathbf{1} 114921^2 \\
\mathbf{1020} 0890439^2 + 66862000^2 &= \mathbf{10201} 109561^2 & \mathbf{1020} 0885079^2 + 68478000^2 &= \mathbf{10201} 114921^2 \\
\mathbf{10203020} 0890439^2 + 6686862000^2 &= \mathbf{102030201} 109561^2 & \mathbf{10203020} 0885079^2 + 6848478000^2 &= \mathbf{102030201} 114921^2 \\
\mathbf{102030403020} 0890439^2 + 668686862000^2 &= \mathbf{1020304030201} 109561^2 & \mathbf{102030403020} 0885079^2 + 684848478000^2 &= \mathbf{1020304030201} 114921^2 \\
&& (4.331) && (4.339)
\end{aligned}$$

$$\begin{aligned}
0889776^2 + 664000^2 &= \mathbf{1} 110224^2 & 0884400^2 + 680000^2 &= \mathbf{1} 115600^2 \\
\mathbf{1020} 0889776^2 + 67064000^2 &= \mathbf{10201} 110224^2 & \mathbf{1020} 0884400^2 + 68680000^2 &= \mathbf{10201} 115600^2 \\
\mathbf{10203020} 0889776^2 + 6707064000^2 &= \mathbf{102030201} 110224^2 & \mathbf{10203020} 0884400^2 + 6868680000^2 &= \mathbf{102030201} 115600^2 \\
\mathbf{102030403020} 0889776^2 + 670707064000^2 &= \mathbf{1020304030201} 110224^2 & \mathbf{102030403020} 0884400^2 + 686868680000^2 &= \mathbf{1020304030201} 115600^2 \\
&& (4.332) && (4.340)
\end{aligned}$$

$$\begin{aligned}
0889111^2 + 666000^2 &= \mathbf{1} 110889^2 & 0883719^2 + 682000^2 &= \mathbf{1} 116281^2 \\
\mathbf{1020} 0889111^2 + 67266000^2 &= \mathbf{10201} 110889^2 & \mathbf{1020} 0883719^2 + 68882000^2 &= \mathbf{10201} 116281^2 \\
\mathbf{10203020} 0889111^2 + 6727266000^2 &= \mathbf{102030201} 110889^2 & \mathbf{10203020} 0883719^2 + 6888882000^2 &= \mathbf{102030201} 116281^2 \\
\mathbf{102030403020} 0889111^2 + 672727266000^2 &= \mathbf{1020304030201} 110889^2 & \mathbf{102030403020} 0883719^2 + 688888882000^2 &= \mathbf{1020304030201} 116281^2 \\
&& (4.333) && (4.341)
\end{aligned}$$

$$\begin{aligned}
0888444^2 + 668000^2 &= \mathbf{1} 111556^2 & 0883036^2 + 684000^2 &= \mathbf{1} 116964^2 \\
\mathbf{1020} 0888444^2 + 67468000^2 &= \mathbf{10201} 111556^2 & \mathbf{1020} 0883036^2 + 69084000^2 &= \mathbf{10201} 116964^2 \\
\mathbf{10203020} 0888444^2 + 6747468000^2 &= \mathbf{102030201} 111556^2 & \mathbf{10203020} 0883036^2 + 6909084000^2 &= \mathbf{102030201} 116964^2 \\
\mathbf{102030403020} 0888444^2 + 674747468000^2 &= \mathbf{1020304030201} 111556^2 & \mathbf{102030403020} 0883036^2 + 690909084000^2 &= \mathbf{1020304030201} 116964^2 \\
&& (4.334) && (4.342)
\end{aligned}$$

$$\begin{aligned}
0887775^2 + 670000^2 &= \mathbf{1} 112225^2 & 0882351^2 + 686000^2 &= \mathbf{1} 117649^2 \\
\mathbf{1020} 0887775^2 + 67670000^2 &= \mathbf{10201} 112225^2 & \mathbf{1020} 0882351^2 + 69286000^2 &= \mathbf{10201} 117649^2 \\
\mathbf{10203020} 0887775^2 + 6767670000^2 &= \mathbf{102030201} 112225^2 & \mathbf{10203020} 0882351^2 + 6929286000^2 &= \mathbf{102030201} 117649^2 \\
\mathbf{102030403020} 0887775^2 + 676767670000^2 &= \mathbf{1020304030201} 112225^2 & \mathbf{102030403020} 0882351^2 + 692929286000^2 &= \mathbf{1020304030201} 117649^2 \\
&& (4.335) && (4.343)
\end{aligned}$$

$$\begin{aligned}
0887104^2 + 672000^2 &= \mathbf{1} 112896^2 & 0881664^2 + 688000^2 &= \mathbf{1} 118336^2 \\
\mathbf{1020} 0887104^2 + 67872000^2 &= \mathbf{10201} 112896^2 & \mathbf{1020} 0881664^2 + 69488000^2 &= \mathbf{10201} 118336^2 \\
\mathbf{10203020} 0887104^2 + 6787872000^2 &= \mathbf{102030201} 112896^2 & \mathbf{10203020} 0881664^2 + 6949488000^2 &= \mathbf{102030201} 118336^2 \\
\mathbf{102030403020} 0887104^2 + 678787872000^2 &= \mathbf{1020304030201} 112896^2 & \mathbf{102030403020} 0881664^2 + 694949488000^2 &= \mathbf{1020304030201} 118336^2 \\
&& (4.336) && (4.344)
\end{aligned}$$

$$\begin{aligned}
0886431^2 + 674000^2 &= \mathbf{1} 113569^2 & 0880975^2 + 690000^2 &= \mathbf{1} 119025^2 \\
\mathbf{1020} 0886431^2 + 68074000^2 &= \mathbf{10201} 113569^2 & \mathbf{1020} 0880975^2 + 69690000^2 &= \mathbf{10201} 119025^2 \\
\mathbf{10203020} 0886431^2 + 6808074000^2 &= \mathbf{102030201} 113569^2 & \mathbf{10203020} 0880975^2 + 6969690000^2 &= \mathbf{102030201} 119025^2 \\
\mathbf{102030403020} 0886431^2 + 680808074000^2 &= \mathbf{1020304030201} 113569^2 & \mathbf{102030403020} 0880975^2 + 696969690000^2 &= \mathbf{1020304030201} 119025^2 \\
&& (4.337) && (4.345)
\end{aligned}$$

$$\begin{aligned}
0885756^2 + 676000^2 &= \mathbf{1} 114244^2 & 0880284^2 + 692000^2 &= \mathbf{1} 119716^2 \\
\mathbf{1020} 0885756^2 + 68276000^2 &= \mathbf{10201} 114244^2 & \mathbf{1020} 0880284^2 + 69892000^2 &= \mathbf{10201} 119716^2 \\
\mathbf{10203020} 0885756^2 + 6828276000^2 &= \mathbf{102030201} 114244^2 & \mathbf{10203020} 0880284^2 + 6989892000^2 &= \mathbf{102030201} 119716^2 \\
\mathbf{102030403020} 0885756^2 + 682828276000^2 &= \mathbf{1020304030201} 114244^2 & \mathbf{102030403020} 0880284^2 + 698989892000^2 &= \mathbf{1020304030201} 119716^2 \\
&& (4.338) && (4.346)
\end{aligned}$$

$$\begin{array}{lcl}
0879591^2 + 694000^2 & = & \mathbf{1\ 120409^2} \\
\mathbf{1020\ 0879591^2 + 70094000^2} & = & \mathbf{10201\ 120409^2} \\
\mathbf{10203020\ 0879591^2 + 7010094000^2} & = & \mathbf{102030201\ 120409^2} \\
\mathbf{102030403020\ 0879591^2 + 701010094000^2} & = & \mathbf{1020304030201\ 120409^2} \\
& & (4.347)
\end{array}
\qquad
\begin{array}{lcl}
0873975^2 + 710000^2 & = & \mathbf{1\ 126025^2} \\
\mathbf{1020\ 0873975^2 + 71710000^2} & = & \mathbf{10201\ 126025^2} \\
\mathbf{10203020\ 0873975^2 + 7171710000^2} & = & \mathbf{102030201\ 126025^2} \\
\mathbf{102030403020\ 0873975^2 + 717171710000^2} & = & \mathbf{1020304030201\ 126025^2} \\
& & (4.355)
\end{array}$$

$$\begin{array}{lcl}
0878896^2 + 696000^2 & = & \mathbf{1\ 121104^2} \\
\mathbf{1020\ 0878896^2 + 70296000^2} & = & \mathbf{10201\ 121104^2} \\
\mathbf{10203020\ 0878896^2 + 7030296000^2} & = & \mathbf{102030201\ 121104^2} \\
\mathbf{102030403020\ 0878896^2 + 703030296000^2} & = & \mathbf{1020304030201\ 121104^2} \\
& & (4.348)
\end{array}
\qquad
\begin{array}{lcl}
0873264^2 + 712000^2 & = & \mathbf{1\ 126736^2} \\
\mathbf{1020\ 0873264^2 + 71912000^2} & = & \mathbf{10201\ 126736^2} \\
\mathbf{10203020\ 0873264^2 + 7191912000^2} & = & \mathbf{102030201\ 126736^2} \\
\mathbf{102030403020\ 0873264^2 + 719191912000^2} & = & \mathbf{1020304030201\ 126736^2} \\
& & (4.356)
\end{array}$$

$$\begin{array}{lcl}
0878199^2 + 698000^2 & = & \mathbf{1\ 121801^2} \\
\mathbf{1020\ 0878199^2 + 70498000^2} & = & \mathbf{10201\ 121801^2} \\
\mathbf{10203020\ 0878199^2 + 7050498000^2} & = & \mathbf{102030201\ 121801^2} \\
\mathbf{102030403020\ 0878199^2 + 705050498000^2} & = & \mathbf{1020304030201\ 121801^2} \\
& & (4.349)
\end{array}
\qquad
\begin{array}{lcl}
0872551^2 + 714000^2 & = & \mathbf{1\ 127449^2} \\
\mathbf{1020\ 0872551^2 + 72114000^2} & = & \mathbf{10201\ 127449^2} \\
\mathbf{10203020\ 0872551^2 + 7212114000^2} & = & \mathbf{102030201\ 127449^2} \\
\mathbf{102030403020\ 0872551^2 + 721212114000^2} & = & \mathbf{1020304030201\ 127449^2} \\
& & (4.357)
\end{array}$$

$$\begin{array}{lcl}
0877500^2 + 700000^2 & = & \mathbf{1\ 122500^2} \\
\mathbf{1020\ 0877500^2 + 70700000^2} & = & \mathbf{10201\ 122500^2} \\
\mathbf{10203020\ 0877500^2 + 7070700000^2} & = & \mathbf{102030201\ 122500^2} \\
\mathbf{102030403020\ 0877500^2 + 707070700000^2} & = & \mathbf{1020304030201\ 122500^2} \\
& & (4.350)
\end{array}
\qquad
\begin{array}{lcl}
0871836^2 + 716000^2 & = & \mathbf{1\ 128164^2} \\
\mathbf{1020\ 0871836^2 + 72316000^2} & = & \mathbf{10201\ 128164^2} \\
\mathbf{10203020\ 0871836^2 + 7232316000^2} & = & \mathbf{102030201\ 128164^2} \\
\mathbf{102030403020\ 0871836^2 + 723232316000^2} & = & \mathbf{1020304030201\ 128164^2} \\
& & (4.358)
\end{array}$$

$$\begin{array}{lcl}
0876799^2 + 702000^2 & = & \mathbf{1\ 123201^2} \\
\mathbf{1020\ 0876799^2 + 70902000^2} & = & \mathbf{10201\ 123201^2} \\
\mathbf{10203020\ 0876799^2 + 7090902000^2} & = & \mathbf{102030201\ 123201^2} \\
\mathbf{102030403020\ 0876799^2 + 709090902000^2} & = & \mathbf{1020304030201\ 123201^2} \\
& & (4.351)
\end{array}
\qquad
\begin{array}{lcl}
0871119^2 + 718000^2 & = & \mathbf{1\ 128881^2} \\
\mathbf{1020\ 0871119^2 + 72518000^2} & = & \mathbf{10201\ 128881^2} \\
\mathbf{10203020\ 0871119^2 + 7252518000^2} & = & \mathbf{102030201\ 128881^2} \\
\mathbf{102030403020\ 0871119^2 + 725252518000^2} & = & \mathbf{1020304030201\ 128881^2} \\
& & (4.359)
\end{array}$$

$$\begin{array}{lcl}
0876096^2 + 704000^2 & = & \mathbf{1\ 123904^2} \\
\mathbf{1020\ 0876096^2 + 71104000^2} & = & \mathbf{10201\ 123904^2} \\
\mathbf{10203020\ 0876096^2 + 7111104000^2} & = & \mathbf{102030201\ 123904^2} \\
\mathbf{102030403020\ 0876096^2 + 711111104000^2} & = & \mathbf{1020304030201\ 123904^2} \\
& & (4.352)
\end{array}
\qquad
\begin{array}{lcl}
0870400^2 + 720000^2 & = & \mathbf{1\ 129600^2} \\
\mathbf{1020\ 0870400^2 + 72720000^2} & = & \mathbf{10201\ 129600^2} \\
\mathbf{10203020\ 0870400^2 + 7272720000^2} & = & \mathbf{102030201\ 129600^2} \\
\mathbf{102030403020\ 0870400^2 + 727272720000^2} & = & \mathbf{1020304030201\ 129600^2} \\
& & (4.360)
\end{array}$$

$$\begin{array}{lcl}
0875391^2 + 706000^2 & = & \mathbf{1\ 124609^2} \\
\mathbf{1020\ 0875391^2 + 71306000^2} & = & \mathbf{10201\ 124609^2} \\
\mathbf{10203020\ 0875391^2 + 7131306000^2} & = & \mathbf{102030201\ 124609^2} \\
\mathbf{102030403020\ 0875391^2 + 713131306000^2} & = & \mathbf{1020304030201\ 124609^2} \\
& & (4.353)
\end{array}
\qquad
\begin{array}{lcl}
0869679^2 + 722000^2 & = & \mathbf{1\ 130321^2} \\
\mathbf{1020\ 0869679^2 + 72922000^2} & = & \mathbf{10201\ 130321^2} \\
\mathbf{10203020\ 0869679^2 + 7292922000^2} & = & \mathbf{102030201\ 130321^2} \\
\mathbf{102030403020\ 0869679^2 + 729292922000^2} & = & \mathbf{1020304030201\ 130321^2} \\
& & (4.361)
\end{array}$$

$$\begin{array}{lcl}
0874684^2 + 708000^2 & = & \mathbf{1\ 125316^2} \\
\mathbf{1020\ 0874684^2 + 71508000^2} & = & \mathbf{10201\ 125316^2} \\
\mathbf{10203020\ 0874684^2 + 7151508000^2} & = & \mathbf{102030201\ 125316^2} \\
\mathbf{102030403020\ 0874684^2 + 715151508000^2} & = & \mathbf{1020304030201\ 125316^2} \\
& & (4.354)
\end{array}
\qquad
\begin{array}{lcl}
0868956^2 + 724000^2 & = & \mathbf{1\ 131044^2} \\
\mathbf{1020\ 0868956^2 + 73124000^2} & = & \mathbf{10201\ 131044^2} \\
\mathbf{10203020\ 0868956^2 + 7313124000^2} & = & \mathbf{102030201\ 131044^2} \\
\mathbf{102030403020\ 0868956^2 + 731313124000^2} & = & \mathbf{1020304030201\ 131044^2} \\
& & (4.362)
\end{array}$$

$$\begin{aligned}
0868231^2 + 726000^2 &= \mathbf{1} 131769^2 & 0862359^2 + 742000^2 &= \mathbf{1} 137641^2 \\
1020 0868231^2 + 73326000^2 &= \mathbf{10201} 131769^2 & 1020 0862359^2 + 74942000^2 &= \mathbf{10201} 137641^2 \\
10203020 0868231^2 + 7333326000^2 &= \mathbf{102030201} 131769^2 & 10203020 0862359^2 + 7494942000^2 &= \mathbf{102030201} 137641^2 \\
102030403020 0868231^2 + 733333326000^2 &= \mathbf{1020304030201} 131769^2 & 102030403020 0862359^2 + 749494942000^2 &= \mathbf{1020304030201} 137641^2 \\
&& (4.363) && (4.371)
\end{aligned}$$

$$\begin{aligned}
0867504^2 + 728000^2 &= \mathbf{1} 132496^2 & 0861616^2 + 744000^2 &= \mathbf{1} 138384^2 \\
1020 0867504^2 + 73528000^2 &= \mathbf{10201} 132496^2 & 1020 0861616^2 + 75144000^2 &= \mathbf{10201} 138384^2 \\
10203020 0867504^2 + 7353528000^2 &= \mathbf{102030201} 132496^2 & 10203020 0861616^2 + 7515144000^2 &= \mathbf{102030201} 138384^2 \\
102030403020 0867504^2 + 735353528000^2 &= \mathbf{1020304030201} 132496^2 & 102030403020 0861616^2 + 751515144000^2 &= \mathbf{1020304030201} 138384^2 \\
&& (4.364) && (4.372)
\end{aligned}$$

$$\begin{aligned}
0866775^2 + 730000^2 &= \mathbf{1} 133225^2 & 0860871^2 + 746000^2 &= \mathbf{1} 139129^2 \\
1020 0866775^2 + 73730000^2 &= \mathbf{10201} 133225^2 & 1020 0860871^2 + 75346000^2 &= \mathbf{10201} 139129^2 \\
10203020 0866775^2 + 7373730000^2 &= \mathbf{102030201} 133225^2 & 10203020 0860871^2 + 7535346000^2 &= \mathbf{102030201} 139129^2 \\
102030403020 0866775^2 + 737373730000^2 &= \mathbf{1020304030201} 133225^2 & 102030403020 0860871^2 + 753535346000^2 &= \mathbf{1020304030201} 139129^2 \\
&& (4.365) && (4.373)
\end{aligned}$$

$$\begin{aligned}
0866044^2 + 732000^2 &= \mathbf{1} 133956^2 & 0860124^2 + 748000^2 &= \mathbf{1} 139876^2 \\
1020 0866044^2 + 73932000^2 &= \mathbf{10201} 133956^2 & 1020 0860124^2 + 75548000^2 &= \mathbf{10201} 139876^2 \\
10203020 0866044^2 + 7393932000^2 &= \mathbf{102030201} 133956^2 & 10203020 0860124^2 + 7555548000^2 &= \mathbf{102030201} 139876^2 \\
102030403020 0866044^2 + 739393932000^2 &= \mathbf{1020304030201} 133956^2 & 102030403020 0860124^2 + 755555548000^2 &= \mathbf{1020304030201} 139876^2 \\
&& (4.366) && (4.374)
\end{aligned}$$

$$\begin{aligned}
0865311^2 + 734000^2 &= \mathbf{1} 134689^2 & 0859375^2 + 750000^2 &= \mathbf{1} 140625^2 \\
1020 0865311^2 + 74134000^2 &= \mathbf{10201} 134689^2 & 1020 0859375^2 + 75750000^2 &= \mathbf{10201} 140625^2 \\
10203020 0865311^2 + 7414134000^2 &= \mathbf{102030201} 134689^2 & 10203020 0859375^2 + 7575750000^2 &= \mathbf{102030201} 140625^2 \\
102030403020 0865311^2 + 741414134000^2 &= \mathbf{1020304030201} 134689^2 & 102030403020 0859375^2 + 757575750000^2 &= \mathbf{1020304030201} 140625^2 \\
&& (4.367) && (4.375)
\end{aligned}$$

$$\begin{aligned}
0864576^2 + 736000^2 &= \mathbf{1} 135424^2 & 0858624^2 + 752000^2 &= \mathbf{1} 141376^2 \\
1020 0864576^2 + 74336000^2 &= \mathbf{10201} 135424^2 & 1020 0858624^2 + 75952000^2 &= \mathbf{10201} 141376^2 \\
10203020 0864576^2 + 7434336000^2 &= \mathbf{102030201} 135424^2 & 10203020 0858624^2 + 7595952000^2 &= \mathbf{102030201} 141376^2 \\
102030403020 0864576^2 + 743434336000^2 &= \mathbf{1020304030201} 135424^2 & 102030403020 0858624^2 + 759595952000^2 &= \mathbf{1020304030201} 141376^2 \\
&& (4.368) && (4.376)
\end{aligned}$$

$$\begin{aligned}
0863839^2 + 738000^2 &= \mathbf{1} 136161^2 & 0857871^2 + 754000^2 &= \mathbf{1} 142129^2 \\
1020 0863839^2 + 74538000^2 &= \mathbf{10201} 136161^2 & 1020 0857871^2 + 76154000^2 &= \mathbf{10201} 142129^2 \\
10203020 0863839^2 + 7454538000^2 &= \mathbf{102030201} 136161^2 & 10203020 0857871^2 + 7616154000^2 &= \mathbf{102030201} 142129^2 \\
102030403020 0863839^2 + 745454538000^2 &= \mathbf{1020304030201} 136161^2 & 102030403020 0857871^2 + 761616154000^2 &= \mathbf{1020304030201} 142129^2 \\
&& (4.369) && (4.377)
\end{aligned}$$

$$\begin{aligned}
0863100^2 + 740000^2 &= \mathbf{1} 136900^2 & 0857116^2 + 756000^2 &= \mathbf{1} 142884^2 \\
1020 0863100^2 + 74740000^2 &= \mathbf{10201} 136900^2 & 1020 0857116^2 + 76356000^2 &= \mathbf{10201} 142884^2 \\
10203020 0863100^2 + 7474740000^2 &= \mathbf{102030201} 136900^2 & 10203020 0857116^2 + 7636356000^2 &= \mathbf{102030201} 142884^2 \\
102030403020 0863100^2 + 747474740000^2 &= \mathbf{1020304030201} 136900^2 & 102030403020 0857116^2 + 763636356000^2 &= \mathbf{1020304030201} 142884^2 \\
&& (4.370) && (4.378)
\end{aligned}$$



$$\begin{array}{lcl}
0856359^2 + 758000^2 & = & \mathbf{1\ 143641^2} \\
1020\ 0856359^2 + 76558000^2 & = & \mathbf{10201\ 143641^2} \\
10203020\ 0856359^2 + 7656558000^2 & = & \mathbf{102030201\ 143641^2} \\
102030403020\ 0856359^2 + 765656558000^2 & = & \mathbf{1020304030201\ 143641^2} \\
& & (4.379)
\end{array}
\qquad
\begin{array}{lcl}
0850231^2 + 774000^2 & = & \mathbf{1\ 149769^2} \\
1020\ 0850231^2 + 78174000^2 & = & \mathbf{10201\ 149769^2} \\
10203020\ 0850231^2 + 7818174000^2 & = & \mathbf{102030201\ 149769^2} \\
102030403020\ 0850231^2 + 781818174000^2 & = & \mathbf{1020304030201\ 149769^2} \\
& & (4.387)
\end{array}$$

$$\begin{array}{lcl}
0855600^2 + 760000^2 & = & \mathbf{1\ 144400^2} \\
1020\ 0855600^2 + 76760000^2 & = & \mathbf{10201\ 144400^2} \\
10203020\ 0855600^2 + 7676760000^2 & = & \mathbf{102030201\ 144400^2} \\
102030403020\ 0855600^2 + 767676760000^2 & = & \mathbf{1020304030201\ 144400^2} \\
& & (4.380)
\end{array}
\qquad
\begin{array}{lcl}
0849456^2 + 776000^2 & = & \mathbf{1\ 150544^2} \\
1020\ 0849456^2 + 78376000^2 & = & \mathbf{10201\ 150544^2} \\
10203020\ 0849456^2 + 7838376000^2 & = & \mathbf{102030201\ 150544^2} \\
102030403020\ 0849456^2 + 783838376000^2 & = & \mathbf{1020304030201\ 150544^2} \\
& & (4.388)
\end{array}$$

$$\begin{array}{lcl}
0854839^2 + 762000^2 & = & \mathbf{1\ 145161^2} \\
1020\ 0854839^2 + 76962000^2 & = & \mathbf{10201\ 145161^2} \\
10203020\ 0854839^2 + 7696962000^2 & = & \mathbf{102030201\ 145161^2} \\
102030403020\ 0854839^2 + 769696962000^2 & = & \mathbf{1020304030201\ 145161^2} \\
& & (4.381)
\end{array}
\qquad
\begin{array}{lcl}
0848679^2 + 778000^2 & = & \mathbf{1\ 151321^2} \\
1020\ 0848679^2 + 78578000^2 & = & \mathbf{10201\ 151321^2} \\
10203020\ 0848679^2 + 7858578000^2 & = & \mathbf{102030201\ 151321^2} \\
102030403020\ 0848679^2 + 785858578000^2 & = & \mathbf{1020304030201\ 151321^2} \\
& & (4.389)
\end{array}$$

$$\begin{array}{lcl}
0854076^2 + 764000^2 & = & \mathbf{1\ 145924^2} \\
1020\ 0854076^2 + 77164000^2 & = & \mathbf{10201\ 145924^2} \\
10203020\ 0854076^2 + 7717164000^2 & = & \mathbf{102030201\ 145924^2} \\
102030403020\ 0854076^2 + 771717164000^2 & = & \mathbf{1020304030201\ 145924^2} \\
& & (4.382)
\end{array}
\qquad
\begin{array}{lcl}
0847900^2 + 780000^2 & = & \mathbf{1\ 152100^2} \\
1020\ 0847900^2 + 78780000^2 & = & \mathbf{10201\ 152100^2} \\
10203020\ 0847900^2 + 7878780000^2 & = & \mathbf{102030201\ 152100^2} \\
102030403020\ 0847900^2 + 787878780000^2 & = & \mathbf{1020304030201\ 152100^2} \\
& & (4.390)
\end{array}$$

$$\begin{array}{lcl}
0853311^2 + 766000^2 & = & \mathbf{1\ 146689^2} \\
1020\ 0853311^2 + 77366000^2 & = & \mathbf{10201\ 146689^2} \\
10203020\ 0853311^2 + 7737366000^2 & = & \mathbf{102030201\ 146689^2} \\
102030403020\ 0853311^2 + 773737366000^2 & = & \mathbf{1020304030201\ 146689^2} \\
& & (4.383)
\end{array}
\qquad
\begin{array}{lcl}
0847119^2 + 782000^2 & = & \mathbf{1\ 152881^2} \\
1020\ 0847119^2 + 78982000^2 & = & \mathbf{10201\ 152881^2} \\
10203020\ 0847119^2 + 7898982000^2 & = & \mathbf{102030201\ 152881^2} \\
102030403020\ 0847119^2 + 789898982000^2 & = & \mathbf{1020304030201\ 152881^2} \\
& & (4.391)
\end{array}$$

$$\begin{array}{lcl}
0852544^2 + 768000^2 & = & \mathbf{1\ 147456^2} \\
1020\ 0852544^2 + 77568000^2 & = & \mathbf{10201\ 147456^2} \\
10203020\ 0852544^2 + 7757568000^2 & = & \mathbf{102030201\ 147456^2} \\
102030403020\ 0852544^2 + 775757568000^2 & = & \mathbf{1020304030201\ 147456^2} \\
& & (4.384)
\end{array}
\qquad
\begin{array}{lcl}
0846336^2 + 784000^2 & = & \mathbf{1\ 153664^2} \\
1020\ 0846336^2 + 79184000^2 & = & \mathbf{10201\ 153664^2} \\
10203020\ 0846336^2 + 7919184000^2 & = & \mathbf{102030201\ 153664^2} \\
102030403020\ 0846336^2 + 791919184000^2 & = & \mathbf{1020304030201\ 153664^2} \\
& & (4.392)
\end{array}$$

$$\begin{array}{lcl}
0851775^2 + 770000^2 & = & \mathbf{1\ 148225^2} \\
1020\ 0851775^2 + 77770000^2 & = & \mathbf{10201\ 148225^2} \\
10203020\ 0851775^2 + 7777770000^2 & = & \mathbf{102030201\ 148225^2} \\
102030403020\ 0851775^2 + 777777770000^2 & = & \mathbf{1020304030201\ 148225^2} \\
& & (4.385)
\end{array}
\qquad
\begin{array}{lcl}
0845551^2 + 786000^2 & = & \mathbf{1\ 154449^2} \\
1020\ 0845551^2 + 79386000^2 & = & \mathbf{10201\ 154449^2} \\
10203020\ 0845551^2 + 7939386000^2 & = & \mathbf{102030201\ 154449^2} \\
102030403020\ 0845551^2 + 793939386000^2 & = & \mathbf{1020304030201\ 154449^2} \\
& & (4.393)
\end{array}$$

$$\begin{array}{lcl}
0851004^2 + 772000^2 & = & \mathbf{1\ 148996^2} \\
1020\ 0851004^2 + 77972000^2 & = & \mathbf{10201\ 148996^2} \\
10203020\ 0851004^2 + 7797972000^2 & = & \mathbf{102030201\ 148996^2} \\
102030403020\ 0851004^2 + 779797972000^2 & = & \mathbf{1020304030201\ 148996^2} \\
& & (4.386)
\end{array}
\qquad
\begin{array}{lcl}
0844764^2 + 788000^2 & = & \mathbf{1\ 155236^2} \\
1020\ 0844764^2 + 79588000^2 & = & \mathbf{10201\ 155236^2} \\
10203020\ 0844764^2 + 7959588000^2 & = & \mathbf{102030201\ 155236^2} \\
102030403020\ 0844764^2 + 795959588000^2 & = & \mathbf{1020304030201\ 155236^2} \\
& & (4.394)
\end{array}$$

$0843975^2 + 790000^2 = 1\ 156025^2$	$0841596^2 + 796000^2 = 1\ 158404^2$
$1020\ 0843975^2 + 79790000^2 = 10201\ 156025^2$	$1020\ 0841596^2 + 80396000^2 = 10201\ 158404^2$
$10203020\ 0843975^2 + 7979790000^2 = 102030201\ 156025^2$	$10203020\ 0841596^2 + 8040396000^2 = 102030201\ 158404^2$
$102030403020\ 0843975^2 + 797979790000^2 = 1020304030201\ 156025^2$ (4.395)	$102030403020\ 0841596^2 + 804040396000^2 = 1020304030201\ 158404^2$ (4.398)
$0843184^2 + 792000^2 = 1\ 156816^2$	$0840799^2 + 798000^2 = 1\ 159201^2$
$1020\ 0843184^2 + 79992000^2 = 10201\ 156816^2$	$1020\ 0840799^2 + 80598000^2 = 10201\ 159201^2$
$10203020\ 0843184^2 + 7999992000^2 = 102030201\ 156816^2$	$10203020\ 0840799^2 + 8060598000^2 = 102030201\ 159201^2$
$102030403020\ 0843184^2 + 799999992000^2 = 1020304030201\ 156816^2$ (4.396)	$102030403020\ 0840799^2 + 806060598000^2 = 1020304030201\ 159201^2$ (4.399)
$0842391^2 + 794000^2 = 1\ 157609^2$	
$1020\ 0842391^2 + 80194000^2 = 10201\ 157609^2$	
$10203020\ 0842391^2 + 8020194000^2 = 102030201\ 157609^2$	
$102030403020\ 0842391^2 + 802020194000^2 = 1020304030201\ 157609^2$ (4.397)	

#### 4.5 For $n = 400, 401, 401, \dots, 497, 498, 499$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 101010101010101000$$

in (1.1), then for each value of  $n = 400, 401, 401, \dots, 497, 498, 499$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$0840000^2 + 800000^2 = 1\ 160000^2$	$0836784^2 + 808000^2 = 1\ 163216^2$
$1020\ 0840000^2 + 80800000^2 = 10201\ 160000^2$	$1020\ 0836784^2 + 81608000^2 = 10201\ 163216^2$
$10203020\ 0840000^2 + 8080800000^2 = 102030201\ 160000^2$	$10203020\ 0836784^2 + 8161608000^2 = 102030201\ 163216^2$
$102030403020\ 0840000^2 + 808080800000^2 = 1020304030201\ 160000^2$ (4.400)	$102030403020\ 0836784^2 + 816161608000^2 = 1020304030201\ 163216^2$ (4.404)
$0839199^2 + 802000^2 = 1\ 160801^2$	$0835975^2 + 810000^2 = 1\ 164025^2$
$1020\ 0839199^2 + 81002000^2 = 10201\ 160801^2$	$1020\ 0835975^2 + 81810000^2 = 10201\ 164025^2$
$10203020\ 0839199^2 + 8101002000^2 = 102030201\ 160801^2$	$10203020\ 0835975^2 + 8181810000^2 = 102030201\ 164025^2$
$102030403020\ 0839199^2 + 810101002000^2 = 1020304030201\ 160801^2$ (4.401)	$102030403020\ 0835975^2 + 818181810000^2 = 1020304030201\ 164025^2$ (4.405)
$0838396^2 + 804000^2 = 1\ 161604^2$	$0835164^2 + 812000^2 = 1\ 164836^2$
$1020\ 0838396^2 + 81204000^2 = 10201\ 161604^2$	$1020\ 0835164^2 + 82012000^2 = 10201\ 164836^2$
$10203020\ 0838396^2 + 8121204000^2 = 102030201\ 161604^2$	$10203020\ 0835164^2 + 8202012000^2 = 102030201\ 164836^2$
$102030403020\ 0838396^2 + 812121204000^2 = 1020304030201\ 161604^2$ (4.402)	$102030403020\ 0835164^2 + 820202012000^2 = 1020304030201\ 164836^2$ (4.406)
$0837591^2 + 806000^2 = 1\ 162409^2$	$0834351^2 + 814000^2 = 1\ 165649^2$
$1020\ 0837591^2 + 81406000^2 = 10201\ 162409^2$	$1020\ 0834351^2 + 82214000^2 = 10201\ 165649^2$
$10203020\ 0837591^2 + 8141406000^2 = 102030201\ 162409^2$	$10203020\ 0834351^2 + 8222214000^2 = 102030201\ 165649^2$
$102030403020\ 0837591^2 + 814141406000^2 = 1020304030201\ 162409^2$ (4.403)	$102030403020\ 0834351^2 + 822222214000^2 = 1020304030201\ 165649^2$ (4.407)

$$\begin{aligned}
& 0833536^2 + 816000^2 = \mathbf{1\ 166464^2} & 0826944^2 + 832000^2 = \mathbf{1\ 173056^2} \\
& \mathbf{1020\ 0833536^2 + 82416000^2} = \mathbf{10201\ 166464^2} & \mathbf{1020\ 0826944^2 + 84032000^2} = \mathbf{10201\ 173056^2} \\
& \mathbf{10203020\ 0833536^2 + 8242416000^2} = \mathbf{102030201\ 166464^2} & \mathbf{10203020\ 0826944^2 + 8404032000^2} = \mathbf{102030201\ 173056^2} \\
& \mathbf{102030403020\ 0833536^2 + 824242416000^2} = \mathbf{1020304030201\ 166464^2} & \mathbf{102030403020\ 0826944^2 + 840404032000^2} = \mathbf{1020304030201\ 173056^2} \\
& & & (4.408) & & (4.416)
\end{aligned}$$

$$\begin{aligned}
& 0832719^2 + 818000^2 = \mathbf{1\ 167281^2} & 0826111^2 + 834000^2 = \mathbf{1\ 173889^2} \\
& \mathbf{1020\ 0832719^2 + 82618000^2} = \mathbf{10201\ 167281^2} & \mathbf{1020\ 0826111^2 + 84234000^2} = \mathbf{10201\ 173889^2} \\
& \mathbf{10203020\ 0832719^2 + 8262618000^2} = \mathbf{102030201\ 167281^2} & \mathbf{10203020\ 0826111^2 + 8424234000^2} = \mathbf{102030201\ 173889^2} \\
& \mathbf{102030403020\ 0832719^2 + 826262618000^2} = \mathbf{1020304030201\ 167281^2} & \mathbf{102030403020\ 0826111^2 + 842424234000^2} = \mathbf{1020304030201\ 173889^2} \\
& & & (4.409) & & (4.417)
\end{aligned}$$

$$\begin{aligned}
& 0831900^2 + 820000^2 = \mathbf{1\ 168100^2} & 0825276^2 + 836000^2 = \mathbf{1\ 174724^2} \\
& \mathbf{1020\ 0831900^2 + 82820000^2} = \mathbf{10201\ 168100^2} & \mathbf{1020\ 0825276^2 + 84436000^2} = \mathbf{10201\ 174724^2} \\
& \mathbf{10203020\ 0831900^2 + 8282820000^2} = \mathbf{102030201\ 168100^2} & \mathbf{10203020\ 0825276^2 + 8444436000^2} = \mathbf{102030201\ 174724^2} \\
& \mathbf{102030403020\ 0831900^2 + 828282820000^2} = \mathbf{1020304030201\ 168100^2} & \mathbf{102030403020\ 0825276^2 + 844444436000^2} = \mathbf{1020304030201\ 174724^2} \\
& & & (4.410) & & (4.418)
\end{aligned}$$

$$\begin{aligned}
& 0831079^2 + 822000^2 = \mathbf{1\ 168921^2} & 0824439^2 + 838000^2 = \mathbf{1\ 175561^2} \\
& \mathbf{1020\ 0831079^2 + 83022000^2} = \mathbf{10201\ 168921^2} & \mathbf{1020\ 0824439^2 + 84638000^2} = \mathbf{10201\ 175561^2} \\
& \mathbf{10203020\ 0831079^2 + 8303022000^2} = \mathbf{102030201\ 168921^2} & \mathbf{10203020\ 0824439^2 + 8464638000^2} = \mathbf{102030201\ 175561^2} \\
& \mathbf{102030403020\ 0831079^2 + 830303022000^2} = \mathbf{1020304030201\ 168921^2} & \mathbf{102030403020\ 0824439^2 + 846464638000^2} = \mathbf{1020304030201\ 175561^2} \\
& & & (4.411) & & (4.419)
\end{aligned}$$

$$\begin{aligned}
& 0830256^2 + 824000^2 = \mathbf{1\ 169744^2} & 0823600^2 + 840000^2 = \mathbf{1\ 176400^2} \\
& \mathbf{1020\ 0830256^2 + 83224000^2} = \mathbf{10201\ 169744^2} & \mathbf{1020\ 0823600^2 + 84840000^2} = \mathbf{10201\ 176400^2} \\
& \mathbf{10203020\ 0830256^2 + 8323224000^2} = \mathbf{102030201\ 169744^2} & \mathbf{10203020\ 0823600^2 + 8484840000^2} = \mathbf{102030201\ 176400^2} \\
& \mathbf{102030403020\ 0830256^2 + 832323224000^2} = \mathbf{1020304030201\ 169744^2} & \mathbf{102030403020\ 0823600^2 + 848484840000^2} = \mathbf{1020304030201\ 176400^2} \\
& & & (4.412) & & (4.420)
\end{aligned}$$

$$\begin{aligned}
& 0829431^2 + 826000^2 = \mathbf{1\ 170569^2} & 0822759^2 + 842000^2 = \mathbf{1\ 177241^2} \\
& \mathbf{1020\ 0829431^2 + 83426000^2} = \mathbf{10201\ 170569^2} & \mathbf{1020\ 0822759^2 + 85042000^2} = \mathbf{10201\ 177241^2} \\
& \mathbf{10203020\ 0829431^2 + 8343426000^2} = \mathbf{102030201\ 170569^2} & \mathbf{10203020\ 0822759^2 + 8505042000^2} = \mathbf{102030201\ 177241^2} \\
& \mathbf{102030403020\ 0829431^2 + 834343426000^2} = \mathbf{1020304030201\ 170569^2} & \mathbf{102030403020\ 0822759^2 + 850505042000^2} = \mathbf{1020304030201\ 177241^2} \\
& & & (4.413) & & (4.421)
\end{aligned}$$

$$\begin{aligned}
& 0828604^2 + 828000^2 = \mathbf{1\ 171396^2} & 0821916^2 + 844000^2 = \mathbf{1\ 178084^2} \\
& \mathbf{1020\ 0828604^2 + 83628000^2} = \mathbf{10201\ 171396^2} & \mathbf{1020\ 0821916^2 + 85244000^2} = \mathbf{10201\ 178084^2} \\
& \mathbf{10203020\ 0828604^2 + 8363628000^2} = \mathbf{102030201\ 171396^2} & \mathbf{10203020\ 0821916^2 + 8525244000^2} = \mathbf{102030201\ 178084^2} \\
& \mathbf{102030403020\ 0828604^2 + 836363628000^2} = \mathbf{1020304030201\ 171396^2} & \mathbf{102030403020\ 0821916^2 + 852525244000^2} = \mathbf{1020304030201\ 178084^2} \\
& & & (4.414) & & (4.422)
\end{aligned}$$

$$\begin{aligned}
& 0827775^2 + 830000^2 = \mathbf{1\ 172225^2} & 0821071^2 + 846000^2 = \mathbf{1\ 178929^2} \\
& \mathbf{1020\ 0827775^2 + 83830000^2} = \mathbf{10201\ 172225^2} & \mathbf{1020\ 0821071^2 + 85446000^2} = \mathbf{10201\ 178929^2} \\
& \mathbf{10203020\ 0827775^2 + 8383830000^2} = \mathbf{102030201\ 172225^2} & \mathbf{10203020\ 0821071^2 + 8545446000^2} = \mathbf{102030201\ 178929^2} \\
& \mathbf{102030403020\ 0827775^2 + 838383830000^2} = \mathbf{1020304030201\ 172225^2} & \mathbf{102030403020\ 0821071^2 + 854545446000^2} = \mathbf{1020304030201\ 178929^2} \\
& & & (4.415) & & (4.423)
\end{aligned}$$

$$\begin{array}{lll}
0820224^2 + 848000^2 & = & 1\ 179776^2 \\
1020\ 0820224^2 + 85648000^2 & = & 10201\ 179776^2 \\
10203020\ 0820224^2 + 8565648000^2 & = & 102030201\ 179776^2 \\
102030403020\ 0820224^2 + 856565648000^2 & = & 1020304030201\ 179776^2 \\
& & (4.424)
\end{array}
\qquad
\begin{array}{lll}
0813376^2 + 864000^2 & = & 1\ 186624^2 \\
1020\ 0813376^2 + 87264000^2 & = & 10201\ 186624^2 \\
10203020\ 0813376^2 + 8727264000^2 & = & 102030201\ 186624^2 \\
102030403020\ 0813376^2 + 872727264000^2 & = & 1020304030201\ 186624^2 \\
& & (4.432)
\end{array}$$

$$\begin{array}{lll}
0819375^2 + 850000^2 & = & 1\ 180625^2 \\
1020\ 0819375^2 + 85850000^2 & = & 10201\ 180625^2 \\
10203020\ 0819375^2 + 8585850000^2 & = & 102030201\ 180625^2 \\
102030403020\ 0819375^2 + 858585850000^2 & = & 1020304030201\ 180625^2 \\
& & (4.425)
\end{array}
\qquad
\begin{array}{lll}
0812511^2 + 866000^2 & = & 1\ 187489^2 \\
1020\ 0812511^2 + 87466000^2 & = & 10201\ 187489^2 \\
10203020\ 0812511^2 + 8747466000^2 & = & 102030201\ 187489^2 \\
102030403020\ 0812511^2 + 874747466000^2 & = & 1020304030201\ 187489^2 \\
& & (4.433)
\end{array}$$

$$\begin{array}{lll}
0818524^2 + 852000^2 & = & 1\ 181476^2 \\
1020\ 0818524^2 + 86052000^2 & = & 10201\ 181476^2 \\
10203020\ 0818524^2 + 8606052000^2 & = & 102030201\ 181476^2 \\
102030403020\ 0818524^2 + 860606052000^2 & = & 1020304030201\ 181476^2 \\
& & (4.426)
\end{array}
\qquad
\begin{array}{lll}
0811644^2 + 868000^2 & = & 1\ 188356^2 \\
1020\ 0811644^2 + 87668000^2 & = & 10201\ 188356^2 \\
10203020\ 0811644^2 + 8767668000^2 & = & 102030201\ 188356^2 \\
102030403020\ 0811644^2 + 876767668000^2 & = & 1020304030201\ 188356^2 \\
& & (4.434)
\end{array}$$

$$\begin{array}{lll}
0817671^2 + 854000^2 & = & 1\ 182329^2 \\
1020\ 0817671^2 + 86254000^2 & = & 10201\ 182329^2 \\
10203020\ 0817671^2 + 8626254000^2 & = & 102030201\ 182329^2 \\
102030403020\ 0817671^2 + 862626254000^2 & = & 1020304030201\ 182329^2 \\
& & (4.427)
\end{array}
\qquad
\begin{array}{lll}
0810775^2 + 870000^2 & = & 1\ 189225^2 \\
1020\ 0810775^2 + 87870000^2 & = & 10201\ 189225^2 \\
10203020\ 0810775^2 + 8787870000^2 & = & 102030201\ 189225^2 \\
102030403020\ 0810775^2 + 878787870000^2 & = & 1020304030201\ 189225^2 \\
& & (4.435)
\end{array}$$

$$\begin{array}{lll}
0816816^2 + 856000^2 & = & 1\ 183184^2 \\
1020\ 0816816^2 + 86456000^2 & = & 10201\ 183184^2 \\
10203020\ 0816816^2 + 8646456000^2 & = & 102030201\ 183184^2 \\
102030403020\ 0816816^2 + 864646456000^2 & = & 1020304030201\ 183184^2 \\
& & (4.428)
\end{array}
\qquad
\begin{array}{lll}
0809904^2 + 872000^2 & = & 1\ 190096^2 \\
1020\ 0809904^2 + 88072000^2 & = & 10201\ 190096^2 \\
10203020\ 0809904^2 + 8808072000^2 & = & 102030201\ 190096^2 \\
102030403020\ 0809904^2 + 880808072000^2 & = & 1020304030201\ 190096^2 \\
& & (4.436)
\end{array}$$

$$\begin{array}{lll}
0815959^2 + 858000^2 & = & 1\ 184041^2 \\
1020\ 0815959^2 + 86658000^2 & = & 10201\ 184041^2 \\
10203020\ 0815959^2 + 8666658000^2 & = & 102030201\ 184041^2 \\
102030403020\ 0815959^2 + 866666658000^2 & = & 1020304030201\ 184041^2 \\
& & (4.429)
\end{array}
\qquad
\begin{array}{lll}
0809031^2 + 874000^2 & = & 1\ 190969^2 \\
1020\ 0809031^2 + 88274000^2 & = & 10201\ 190969^2 \\
10203020\ 0809031^2 + 8828274000^2 & = & 102030201\ 190969^2 \\
102030403020\ 0809031^2 + 882828274000^2 & = & 1020304030201\ 190969^2 \\
& & (4.437)
\end{array}$$

$$\begin{array}{lll}
0815100^2 + 860000^2 & = & 1\ 184900^2 \\
1020\ 0815100^2 + 86860000^2 & = & 10201\ 184900^2 \\
10203020\ 0815100^2 + 8686860000^2 & = & 102030201\ 184900^2 \\
102030403020\ 0815100^2 + 868686860000^2 & = & 1020304030201\ 184900^2 \\
& & (4.430)
\end{array}
\qquad
\begin{array}{lll}
0808156^2 + 876000^2 & = & 1\ 191844^2 \\
1020\ 0808156^2 + 88476000^2 & = & 10201\ 191844^2 \\
10203020\ 0808156^2 + 8848476000^2 & = & 102030201\ 191844^2 \\
102030403020\ 0808156^2 + 884848476000^2 & = & 1020304030201\ 191844^2 \\
& & (4.438)
\end{array}$$

$$\begin{array}{lll}
0814239^2 + 862000^2 & = & 1\ 185761^2 \\
1020\ 0814239^2 + 87062000^2 & = & 10201\ 185761^2 \\
10203020\ 0814239^2 + 8707062000^2 & = & 102030201\ 185761^2 \\
102030403020\ 0814239^2 + 870707062000^2 & = & 1020304030201\ 185761^2 \\
& & (4.431)
\end{array}
\qquad
\begin{array}{lll}
0807279^2 + 878000^2 & = & 1\ 192721^2 \\
1020\ 0807279^2 + 88678000^2 & = & 10201\ 192721^2 \\
10203020\ 0807279^2 + 8868678000^2 & = & 102030201\ 192721^2 \\
102030403020\ 0807279^2 + 886868678000^2 & = & 1020304030201\ 192721^2 \\
& & (4.439)
\end{array}$$

$$\begin{array}{l}
0806400^2 + 880000^2 = 1\ 193600^2 \\
1020\ 0806400^2 + 88880000^2 = 10201\ 193600^2 \\
10203020\ 0806400^2 + 8888880000^2 = 102030201\ 193600^2 \\
102030403020\ 0806400^2 + 88888880000^2 = 1020304030201\ 193600^2 \\
\phantom{102030403020\ 0806400^2 + 88888880000^2} = (4.440)
\end{array}
\qquad
\begin{array}{l}
0799296^2 + 896000^2 = 1\ 200704^2 \\
1020\ 0799296^2 + 90496000^2 = 10201\ 200704^2 \\
10203020\ 0799296^2 + 9050496000^2 = 102030201\ 200704^2 \\
102030403020\ 0799296^2 + 905050496000^2 = 1020304030201\ 200704^2 \\
\phantom{102030403020\ 0799296^2 + 905050496000^2} = (4.448)
\end{array}$$

$$\begin{array}{l}
0805519^2 + 882000^2 = 1\ 194481^2 \\
1020\ 0805519^2 + 89082000^2 = 10201\ 194481^2 \\
10203020\ 0805519^2 + 8909082000^2 = 102030201\ 194481^2 \\
102030403020\ 0805519^2 + 890909082000^2 = 1020304030201\ 194481^2 \\
\phantom{102030403020\ 0805519^2 + 890909082000^2} = (4.441)
\end{array}
\qquad
\begin{array}{l}
0798399^2 + 898000^2 = 1\ 201601^2 \\
1020\ 0798399^2 + 90698000^2 = 10201\ 201601^2 \\
10203020\ 0798399^2 + 9070698000^2 = 102030201\ 201601^2 \\
102030403020\ 0798399^2 + 907070698000^2 = 1020304030201\ 201601^2 \\
\phantom{102030403020\ 0798399^2 + 907070698000^2} = (4.449)
\end{array}$$

$$\begin{array}{l}
0804636^2 + 884000^2 = 1\ 195364^2 \\
1020\ 0804636^2 + 89284000^2 = 10201\ 195364^2 \\
10203020\ 0804636^2 + 8929284000^2 = 102030201\ 195364^2 \\
102030403020\ 0804636^2 + 892929284000^2 = 1020304030201\ 195364^2 \\
\phantom{102030403020\ 0804636^2 + 892929284000^2} = (4.442)
\end{array}
\qquad
\begin{array}{l}
0797500^2 + 900000^2 = 1\ 202500^2 \\
1020\ 0797500^2 + 90900000^2 = 10201\ 202500^2 \\
10203020\ 0797500^2 + 9090900000^2 = 102030201\ 202500^2 \\
102030403020\ 0797500^2 + 909090900000^2 = 1020304030201\ 202500^2 \\
\phantom{102030403020\ 0797500^2 + 909090900000^2} = (4.450)
\end{array}$$

$$\begin{array}{l}
0803751^2 + 886000^2 = 1\ 196249^2 \\
1020\ 0803751^2 + 89486000^2 = 10201\ 196249^2 \\
10203020\ 0803751^2 + 8949486000^2 = 102030201\ 196249^2 \\
102030403020\ 0803751^2 + 894949486000^2 = 1020304030201\ 196249^2 \\
\phantom{102030403020\ 0803751^2 + 894949486000^2} = (4.443)
\end{array}
\qquad
\begin{array}{l}
0796599^2 + 902000^2 = 1\ 203401^2 \\
1020\ 0796599^2 + 91102000^2 = 10201\ 203401^2 \\
10203020\ 0796599^2 + 9111102000^2 = 102030201\ 203401^2 \\
102030403020\ 0796599^2 + 911111102000^2 = 1020304030201\ 203401^2 \\
\phantom{102030403020\ 0796599^2 + 911111102000^2} = (4.451)
\end{array}$$

$$\begin{array}{l}
0802864^2 + 888000^2 = 1\ 197136^2 \\
1020\ 0802864^2 + 89688000^2 = 10201\ 197136^2 \\
10203020\ 0802864^2 + 8969688000^2 = 102030201\ 197136^2 \\
102030403020\ 0802864^2 + 896969688000^2 = 1020304030201\ 197136^2 \\
\phantom{102030403020\ 0802864^2 + 896969688000^2} = (4.444)
\end{array}
\qquad
\begin{array}{l}
0795696^2 + 904000^2 = 1\ 204304^2 \\
1020\ 0795696^2 + 91304000^2 = 10201\ 204304^2 \\
10203020\ 0795696^2 + 9131304000^2 = 102030201\ 204304^2 \\
102030403020\ 0795696^2 + 913131304000^2 = 1020304030201\ 204304^2 \\
\phantom{102030403020\ 0795696^2 + 913131304000^2} = (4.452)
\end{array}$$

$$\begin{array}{l}
0801975^2 + 890000^2 = 1\ 198025^2 \\
1020\ 0801975^2 + 89890000^2 = 10201\ 198025^2 \\
10203020\ 0801975^2 + 8989890000^2 = 102030201\ 198025^2 \\
102030403020\ 0801975^2 + 898989890000^2 = 1020304030201\ 198025^2 \\
\phantom{102030403020\ 0801975^2 + 898989890000^2} = (4.445)
\end{array}
\qquad
\begin{array}{l}
0794791^2 + 906000^2 = 1\ 205209^2 \\
1020\ 0794791^2 + 91506000^2 = 10201\ 205209^2 \\
10203020\ 0794791^2 + 9151506000^2 = 102030201\ 205209^2 \\
102030403020\ 0794791^2 + 915151506000^2 = 1020304030201\ 205209^2 \\
\phantom{102030403020\ 0794791^2 + 915151506000^2} = (4.453)
\end{array}$$

$$\begin{array}{l}
0801084^2 + 892000^2 = 1\ 198916^2 \\
1020\ 0801084^2 + 90092000^2 = 10201\ 198916^2 \\
10203020\ 0801084^2 + 9010092000^2 = 102030201\ 198916^2 \\
102030403020\ 0801084^2 + 901010092000^2 = 1020304030201\ 198916^2 \\
\phantom{102030403020\ 0801084^2 + 901010092000^2} = (4.446)
\end{array}
\qquad
\begin{array}{l}
0793884^2 + 908000^2 = 1\ 206116^2 \\
1020\ 0793884^2 + 91708000^2 = 10201\ 206116^2 \\
10203020\ 0793884^2 + 9171708000^2 = 102030201\ 206116^2 \\
102030403020\ 0793884^2 + 917171708000^2 = 1020304030201\ 206116^2 \\
\phantom{102030403020\ 0793884^2 + 917171708000^2} = (4.454)
\end{array}$$

$$\begin{array}{l}
0800191^2 + 894000^2 = 1\ 199809^2 \\
1020\ 0800191^2 + 90294000^2 = 10201\ 199809^2 \\
10203020\ 0800191^2 + 9030294000^2 = 102030201\ 199809^2 \\
102030403020\ 0800191^2 + 903030294000^2 = 1020304030201\ 199809^2 \\
\phantom{102030403020\ 0800191^2 + 903030294000^2} = (4.447)
\end{array}
\qquad
\begin{array}{l}
0792975^2 + 910000^2 = 1\ 207025^2 \\
1020\ 0792975^2 + 91910000^2 = 10201\ 207025^2 \\
10203020\ 0792975^2 + 9191910000^2 = 102030201\ 207025^2 \\
102030403020\ 0792975^2 + 919191910000^2 = 1020304030201\ 207025^2 \\
\phantom{102030403020\ 0792975^2 + 919191910000^2} = (4.455)
\end{array}$$

$$\begin{array}{lll}
0792064^2 + 912000^2 & = & 1207936^2 \\
1020\ 0792064^2 + 92112000^2 & = & 10201\ 207936^2 \\
10203020\ 0792064^2 + 9212112000^2 & = & 102030201\ 207936^2 \\
102030403020\ 0792064^2 + 921212112000^2 & = & 1020304030201\ 207936^2 \\
& & (4.456)
\end{array}
\qquad
\begin{array}{lll}
0784704^2 + 928000^2 & = & 1215296^2 \\
1020\ 0784704^2 + 93728000^2 & = & 10201\ 215296^2 \\
10203020\ 0784704^2 + 9373728000^2 & = & 102030201\ 215296^2 \\
102030403020\ 0784704^2 + 937373728000^2 & = & 1020304030201\ 215296^2 \\
& & (4.464)
\end{array}$$

$$\begin{array}{lll}
0791151^2 + 914000^2 & = & 1208849^2 \\
1020\ 0791151^2 + 92314000^2 & = & 10201\ 208849^2 \\
10203020\ 0791151^2 + 9232314000^2 & = & 102030201\ 208849^2 \\
102030403020\ 0791151^2 + 923232314000^2 & = & 1020304030201\ 208849^2 \\
& & (4.457)
\end{array}
\qquad
\begin{array}{lll}
0783775^2 + 930000^2 & = & 1216225^2 \\
1020\ 0783775^2 + 93930000^2 & = & 10201\ 216225^2 \\
10203020\ 0783775^2 + 9393930000^2 & = & 102030201\ 216225^2 \\
102030403020\ 0783775^2 + 939393930000^2 & = & 1020304030201\ 216225^2 \\
& & (4.465)
\end{array}$$

$$\begin{array}{lll}
0790236^2 + 916000^2 & = & 1209764^2 \\
1020\ 0790236^2 + 92516000^2 & = & 10201\ 209764^2 \\
10203020\ 0790236^2 + 9252516000^2 & = & 102030201\ 209764^2 \\
102030403020\ 0790236^2 + 925252516000^2 & = & 1020304030201\ 209764^2 \\
& & (4.458)
\end{array}
\qquad
\begin{array}{lll}
0782844^2 + 932000^2 & = & 1217156^2 \\
1020\ 0782844^2 + 94132000^2 & = & 10201\ 217156^2 \\
10203020\ 0782844^2 + 9414132000^2 & = & 102030201\ 217156^2 \\
102030403020\ 0782844^2 + 941414132000^2 & = & 1020304030201\ 217156^2 \\
& & (4.466)
\end{array}$$

$$\begin{array}{lll}
0789319^2 + 918000^2 & = & 1210681^2 \\
1020\ 0789319^2 + 92718000^2 & = & 10201\ 210681^2 \\
10203020\ 0789319^2 + 9272718000^2 & = & 102030201\ 210681^2 \\
102030403020\ 0789319^2 + 927272718000^2 & = & 1020304030201\ 210681^2 \\
& & (4.459)
\end{array}
\qquad
\begin{array}{lll}
0781911^2 + 934000^2 & = & 1218089^2 \\
1020\ 0781911^2 + 94334000^2 & = & 10201\ 218089^2 \\
10203020\ 0781911^2 + 9434334000^2 & = & 102030201\ 218089^2 \\
102030403020\ 0781911^2 + 943434334000^2 & = & 1020304030201\ 218089^2 \\
& & (4.467)
\end{array}$$

$$\begin{array}{lll}
0788400^2 + 920000^2 & = & 1211600^2 \\
1020\ 0788400^2 + 92920000^2 & = & 10201\ 211600^2 \\
10203020\ 0788400^2 + 9292920000^2 & = & 102030201\ 211600^2 \\
102030403020\ 0788400^2 + 929292920000^2 & = & 1020304030201\ 211600^2 \\
& & (4.460)
\end{array}
\qquad
\begin{array}{lll}
0780976^2 + 936000^2 & = & 1219024^2 \\
1020\ 0780976^2 + 94536000^2 & = & 10201\ 219024^2 \\
10203020\ 0780976^2 + 9454536000^2 & = & 102030201\ 219024^2 \\
102030403020\ 0780976^2 + 945454536000^2 & = & 1020304030201\ 219024^2 \\
& & (4.468)
\end{array}$$

$$\begin{array}{lll}
0787479^2 + 922000^2 & = & 1212521^2 \\
1020\ 0787479^2 + 93122000^2 & = & 10201\ 212521^2 \\
10203020\ 0787479^2 + 9313122000^2 & = & 102030201\ 212521^2 \\
102030403020\ 0787479^2 + 931313122000^2 & = & 1020304030201\ 212521^2 \\
& & (4.461)
\end{array}
\qquad
\begin{array}{lll}
0780039^2 + 938000^2 & = & 1219961^2 \\
1020\ 0780039^2 + 94738000^2 & = & 10201\ 219961^2 \\
10203020\ 0780039^2 + 9474738000^2 & = & 102030201\ 219961^2 \\
102030403020\ 0780039^2 + 947474738000^2 & = & 1020304030201\ 219961^2 \\
& & (4.469)
\end{array}$$

$$\begin{array}{lll}
0786556^2 + 924000^2 & = & 1213444^2 \\
1020\ 0786556^2 + 93324000^2 & = & 10201\ 213444^2 \\
10203020\ 0786556^2 + 9333324000^2 & = & 102030201\ 213444^2 \\
102030403020\ 0786556^2 + 933333324000^2 & = & 1020304030201\ 213444^2 \\
& & (4.462)
\end{array}
\qquad
\begin{array}{lll}
0779100^2 + 940000^2 & = & 1220900^2 \\
1020\ 0779100^2 + 94940000^2 & = & 10201\ 220900^2 \\
10203020\ 0779100^2 + 9494940000^2 & = & 102030201\ 220900^2 \\
102030403020\ 0779100^2 + 949494940000^2 & = & 1020304030201\ 220900^2 \\
& & (4.470)
\end{array}$$

$$\begin{array}{lll}
0785631^2 + 926000^2 & = & 1214369^2 \\
1020\ 0785631^2 + 93526000^2 & = & 10201\ 214369^2 \\
10203020\ 0785631^2 + 9353526000^2 & = & 102030201\ 214369^2 \\
102030403020\ 0785631^2 + 935353526000^2 & = & 1020304030201\ 214369^2 \\
& & (4.463)
\end{array}
\qquad
\begin{array}{lll}
0778159^2 + 942000^2 & = & 1221841^2 \\
1020\ 0778159^2 + 95142000^2 & = & 10201\ 221841^2 \\
10203020\ 0778159^2 + 9515142000^2 & = & 102030201\ 221841^2 \\
102030403020\ 0778159^2 + 951515142000^2 & = & 1020304030201\ 221841^2 \\
& & (4.471)
\end{array}$$

$$\begin{array}{lcl}
0777216^2 + 944000^2 & = & 1\ 222784^2 \\
1020\ 0777216^2 + 95344000^2 & = & 10201\ 222784^2 \\
10203020\ 0777216^2 + 9535344000^2 & = & 102030201\ 222784^2 \\
102030403020\ 0777216^2 + 953535344000^2 & = & 1020304030201\ 222784^2 \\
& & (4.472)
\end{array}
\qquad
\begin{array}{lcl}
0769600^2 + 960000^2 & = & 1\ 230400^2 \\
1020\ 0769600^2 + 96960000^2 & = & 10201\ 230400^2 \\
10203020\ 0769600^2 + 9696960000^2 & = & 102030201\ 230400^2 \\
102030403020\ 0769600^2 + 969696960000^2 & = & 1020304030201\ 230400^2 \\
& & (4.480)
\end{array}$$

$$\begin{array}{lcl}
0776271^2 + 946000^2 & = & 1\ 223729^2 \\
1020\ 0776271^2 + 95546000^2 & = & 10201\ 223729^2 \\
10203020\ 0776271^2 + 9555546000^2 & = & 102030201\ 223729^2 \\
102030403020\ 0776271^2 + 955555546000^2 & = & 1020304030201\ 223729^2 \\
& & (4.473)
\end{array}
\qquad
\begin{array}{lcl}
0768639^2 + 962000^2 & = & 1\ 231361^2 \\
1020\ 0768639^2 + 97162000^2 & = & 10201\ 231361^2 \\
10203020\ 0768639^2 + 9717162000^2 & = & 102030201\ 231361^2 \\
102030403020\ 0768639^2 + 971717162000^2 & = & 1020304030201\ 231361^2 \\
& & (4.481)
\end{array}$$

$$\begin{array}{lcl}
0775324^2 + 948000^2 & = & 1\ 224676^2 \\
1020\ 0775324^2 + 95748000^2 & = & 10201\ 224676^2 \\
10203020\ 0775324^2 + 9575748000^2 & = & 102030201\ 224676^2 \\
102030403020\ 0775324^2 + 957575748000^2 & = & 1020304030201\ 224676^2 \\
& & (4.474)
\end{array}
\qquad
\begin{array}{lcl}
0767676^2 + 964000^2 & = & 1\ 232324^2 \\
1020\ 0767676^2 + 97364000^2 & = & 10201\ 232324^2 \\
10203020\ 0767676^2 + 9737364000^2 & = & 102030201\ 232324^2 \\
102030403020\ 0767676^2 + 973737364000^2 & = & 1020304030201\ 232324^2 \\
& & (4.482)
\end{array}$$

$$\begin{array}{lcl}
0774375^2 + 950000^2 & = & 1\ 225625^2 \\
1020\ 0774375^2 + 95950000^2 & = & 10201\ 225625^2 \\
10203020\ 0774375^2 + 9595950000^2 & = & 102030201\ 225625^2 \\
102030403020\ 0774375^2 + 959595950000^2 & = & 1020304030201\ 225625^2 \\
& & (4.475)
\end{array}
\qquad
\begin{array}{lcl}
0766711^2 + 966000^2 & = & 1\ 233289^2 \\
1020\ 0766711^2 + 97566000^2 & = & 10201\ 233289^2 \\
10203020\ 0766711^2 + 9757566000^2 & = & 102030201\ 233289^2 \\
102030403020\ 0766711^2 + 975757566000^2 & = & 1020304030201\ 233289^2 \\
& & (4.483)
\end{array}$$

$$\begin{array}{lcl}
0773424^2 + 952000^2 & = & 1\ 226576^2 \\
1020\ 0773424^2 + 96152000^2 & = & 10201\ 226576^2 \\
10203020\ 0773424^2 + 9616152000^2 & = & 102030201\ 226576^2 \\
102030403020\ 0773424^2 + 961616152000^2 & = & 1020304030201\ 226576^2 \\
& & (4.476)
\end{array}
\qquad
\begin{array}{lcl}
0765744^2 + 968000^2 & = & 1\ 234256^2 \\
1020\ 0765744^2 + 97768000^2 & = & 10201\ 234256^2 \\
10203020\ 0765744^2 + 9777768000^2 & = & 102030201\ 234256^2 \\
102030403020\ 0765744^2 + 977777768000^2 & = & 1020304030201\ 234256^2 \\
& & (4.484)
\end{array}$$

$$\begin{array}{lcl}
0772471^2 + 954000^2 & = & 1\ 227529^2 \\
1020\ 0772471^2 + 96354000^2 & = & 10201\ 227529^2 \\
10203020\ 0772471^2 + 9636354000^2 & = & 102030201\ 227529^2 \\
102030403020\ 0772471^2 + 963636354000^2 & = & 1020304030201\ 227529^2 \\
& & (4.477)
\end{array}
\qquad
\begin{array}{lcl}
0764775^2 + 970000^2 & = & 1\ 235225^2 \\
1020\ 0764775^2 + 97970000^2 & = & 10201\ 235225^2 \\
10203020\ 0764775^2 + 9797970000^2 & = & 102030201\ 235225^2 \\
102030403020\ 0764775^2 + 979797970000^2 & = & 1020304030201\ 235225^2 \\
& & (4.485)
\end{array}$$

$$\begin{array}{lcl}
0771516^2 + 956000^2 & = & 1\ 228484^2 \\
1020\ 0771516^2 + 96556000^2 & = & 10201\ 228484^2 \\
10203020\ 0771516^2 + 9656556000^2 & = & 102030201\ 228484^2 \\
102030403020\ 0771516^2 + 965656556000^2 & = & 1020304030201\ 228484^2 \\
& & (4.478)
\end{array}
\qquad
\begin{array}{lcl}
0763804^2 + 972000^2 & = & 1\ 236196^2 \\
1020\ 0763804^2 + 98172000^2 & = & 10201\ 236196^2 \\
10203020\ 0763804^2 + 9818172000^2 & = & 102030201\ 236196^2 \\
102030403020\ 0763804^2 + 981818172000^2 & = & 1020304030201\ 236196^2 \\
& & (4.486)
\end{array}$$

$$\begin{array}{lcl}
0770559^2 + 958000^2 & = & 1\ 229441^2 \\
1020\ 0770559^2 + 96758000^2 & = & 10201\ 229441^2 \\
10203020\ 0770559^2 + 9676758000^2 & = & 102030201\ 229441^2 \\
102030403020\ 0770559^2 + 967676758000^2 & = & 1020304030201\ 229441^2 \\
& & (4.479)
\end{array}
\qquad
\begin{array}{lcl}
0762831^2 + 974000^2 & = & 1\ 237169^2 \\
1020\ 0762831^2 + 98374000^2 & = & 10201\ 237169^2 \\
10203020\ 0762831^2 + 9838374000^2 & = & 102030201\ 237169^2 \\
102030403020\ 0762831^2 + 983838374000^2 & = & 1020304030201\ 237169^2 \\
& & (4.487)
\end{array}$$

$$\begin{array}{lll}
0761856^2 + 976000^2 & = & 1\ 238144^2 \\
1020\ 0761856^2 + 98576000^2 & = & 10201\ 238144^2 \\
10203020\ 0761856^2 + 9858576000^2 & = & 102030201\ 238144^2 \\
102030403020\ 0761856^2 + 985858576000^2 & = & 1020304030201\ 238144^2 \\
& & (4.488)
\end{array}
\qquad
\begin{array}{lll}
0755964^2 + 988000^2 & = & 1\ 244036^2 \\
1020\ 0755964^2 + 99788000^2 & = & 10201\ 244036^2 \\
10203020\ 0755964^2 + 9979788000^2 & = & 102030201\ 244036^2 \\
102030403020\ 0755964^2 + 997979788000^2 & = & 1020304030201\ 244036^2 \\
& & (4.494)
\end{array}$$

$$\begin{array}{lll}
0760879^2 + 978000^2 & = & 1\ 239121^2 \\
1020\ 0760879^2 + 98778000^2 & = & 10201\ 239121^2 \\
10203020\ 0760879^2 + 9878778000^2 & = & 102030201\ 239121^2 \\
102030403020\ 0760879^2 + 987878778000^2 & = & 1020304030201\ 239121^2 \\
& & (4.489)
\end{array}
\qquad
\begin{array}{lll}
0754975^2 + 990000^2 & = & 1\ 245025^2 \\
1020\ 0754975^2 + 99990000^2 & = & 10201\ 245025^2 \\
10203020\ 0754975^2 + 9999990000^2 & = & 102030201\ 245025^2 \\
102030403020\ 0754975^2 + 999999990000^2 & = & 1020304030201\ 245025^2 \\
& & (4.495)
\end{array}$$

$$\begin{array}{lll}
0759900^2 + 980000^2 & = & 1\ 240100^2 \\
1020\ 0759900^2 + 98980000^2 & = & 10201\ 240100^2 \\
10203020\ 0759900^2 + 9898980000^2 & = & 102030201\ 240100^2 \\
102030403020\ 0759900^2 + 989898980000^2 & = & 1020304030201\ 240100^2 \\
& & (4.490)
\end{array}
\qquad
\begin{array}{lll}
0753984^2 + 992000^2 & = & 1\ 246016^2 \\
1020\ 0753984^2 + 100192000^2 & = & 10201\ 246016^2 \\
10203020\ 0753984^2 + 10020192000^2 & = & 102030201\ 246016^2 \\
102030403020\ 0753984^2 + 1002020192000^2 & = & 1020304030201\ 246016^2 \\
& & (4.496)
\end{array}$$

$$\begin{array}{lll}
0758919^2 + 982000^2 & = & 1\ 241081^2 \\
1020\ 0758919^2 + 99182000^2 & = & 10201\ 241081^2 \\
10203020\ 0758919^2 + 9919182000^2 & = & 102030201\ 241081^2 \\
102030403020\ 0758919^2 + 991919182000^2 & = & 1020304030201\ 241081^2 \\
& & (4.491)
\end{array}
\qquad
\begin{array}{lll}
0752991^2 + 994000^2 & = & 1\ 247009^2 \\
1020\ 0752991^2 + 100394000^2 & = & 10201\ 247009^2 \\
10203020\ 0752991^2 + 10040394000^2 & = & 102030201\ 247009^2 \\
102030403020\ 0752991^2 + 1004040394000^2 & = & 1020304030201\ 247009^2 \\
& & (4.497)
\end{array}$$

$$\begin{array}{lll}
0757936^2 + 984000^2 & = & 1\ 242064^2 \\
1020\ 0757936^2 + 99384000^2 & = & 10201\ 242064^2 \\
10203020\ 0757936^2 + 9939384000^2 & = & 102030201\ 242064^2 \\
102030403020\ 0757936^2 + 993939384000^2 & = & 1020304030201\ 242064^2 \\
& & (4.492)
\end{array}
\qquad
\begin{array}{lll}
0751996^2 + 996000^2 & = & 1\ 248004^2 \\
1020\ 0751996^2 + 100596000^2 & = & 10201\ 248004^2 \\
10203020\ 0751996^2 + 10060596000^2 & = & 102030201\ 248004^2 \\
102030403020\ 0751996^2 + 1006060596000^2 & = & 1020304030201\ 248004^2 \\
& & (4.498)
\end{array}$$

$$\begin{array}{lll}
0756951^2 + 986000^2 & = & 1\ 243049^2 \\
1020\ 0756951^2 + 99586000^2 & = & 10201\ 243049^2 \\
10203020\ 0756951^2 + 9959586000^2 & = & 102030201\ 243049^2 \\
102030403020\ 0756951^2 + 995959586000^2 & = & 1020304030201\ 243049^2 \\
& & (4.493)
\end{array}
\qquad
\begin{array}{lll}
0750999^2 + 998000^2 & = & 1\ 249001^2 \\
1020\ 0750999^2 + 100798000^2 & = & 10201\ 249001^2 \\
10203020\ 0750999^2 + 10080798000^2 & = & 102030201\ 249001^2 \\
102030403020\ 0750999^2 + 1008080798000^2 & = & 1020304030201\ 249001^2 \\
& & (4.499)
\end{array}$$

#### 4.6 For $n = 500, 501, 501, \dots, 597, 598, 599$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 500, 501, 501, \dots, 597, 598, 599$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.



$$\begin{array}{rcl}
0750000^2 + 1000000^2 & = & 1250000^2 \\
10200750000^2 + 101000000^2 & = & 10201250000^2 \\
102030200750000^2 + 10101000000^2 & = & 102030201250000^2 \\
1020304030200750000^2 + 1010101000000^2 & = & 1020304030201250000^2 \\
& & (4.500)
\end{array}
\qquad
\begin{array}{rcl}
0741936^2 + 1016000^2 & = & 1258064^2 \\
10200741936^2 + 102616000^2 & = & 10201258064^2 \\
102030200741936^2 + 10262616000^2 & = & 102030201258064^2 \\
1020304030200741936^2 + 1026262616000^2 & = & 1020304030201258064^2 \\
& & (4.508)
\end{array}$$

$$\begin{array}{rcl}
0748999^2 + 1002000^2 & = & 1251001^2 \\
10200748999^2 + 101202000^2 & = & 10201251001^2 \\
102030200748999^2 + 10121202000^2 & = & 102030201251001^2 \\
1020304030200748999^2 + 1012121202000^2 & = & 1020304030201251001^2 \\
& & (4.501)
\end{array}
\qquad
\begin{array}{rcl}
0740919^2 + 1018000^2 & = & 1259081^2 \\
10200740919^2 + 102818000^2 & = & 10201259081^2 \\
102030200740919^2 + 10282818000^2 & = & 102030201259081^2 \\
1020304030200740919^2 + 1028282818000^2 & = & 1020304030201259081^2 \\
& & (4.509)
\end{array}$$

$$\begin{array}{rcl}
0747996^2 + 1004000^2 & = & 1252004^2 \\
10200747996^2 + 101404000^2 & = & 10201252004^2 \\
102030200747996^2 + 10141404000^2 & = & 102030201252004^2 \\
1020304030200747996^2 + 1014141404000^2 & = & 1020304030201252004^2 \\
& & (4.502)
\end{array}
\qquad
\begin{array}{rcl}
0739900^2 + 1020000^2 & = & 1260100^2 \\
10200739900^2 + 103020000^2 & = & 10201260100^2 \\
102030200739900^2 + 10303020000^2 & = & 102030201260100^2 \\
1020304030200739900^2 + 1030303020000^2 & = & 1020304030201260100^2 \\
& & (4.510)
\end{array}$$

$$\begin{array}{rcl}
0746991^2 + 1006000^2 & = & 1253009^2 \\
10200746991^2 + 101606000^2 & = & 10201253009^2 \\
102030200746991^2 + 10161606000^2 & = & 102030201253009^2 \\
1020304030200746991^2 + 1016161606000^2 & = & 1020304030201253009^2 \\
& & (4.503)
\end{array}
\qquad
\begin{array}{rcl}
0738879^2 + 1022000^2 & = & 1261121^2 \\
10200738879^2 + 103222000^2 & = & 10201261121^2 \\
102030200738879^2 + 10323222000^2 & = & 102030201261121^2 \\
1020304030200738879^2 + 1032323222000^2 & = & 1020304030201261121^2 \\
& & (4.511)
\end{array}$$

$$\begin{array}{rcl}
0745984^2 + 1008000^2 & = & 1254016^2 \\
10200745984^2 + 101808000^2 & = & 10201254016^2 \\
102030200745984^2 + 10181808000^2 & = & 102030201254016^2 \\
1020304030200745984^2 + 1018181808000^2 & = & 1020304030201254016^2 \\
& & (4.504)
\end{array}
\qquad
\begin{array}{rcl}
0737856^2 + 1024000^2 & = & 1262144^2 \\
10200737856^2 + 103424000^2 & = & 10201262144^2 \\
102030200737856^2 + 10343424000^2 & = & 102030201262144^2 \\
1020304030200737856^2 + 1034343424000^2 & = & 1020304030201262144^2 \\
& & (4.512)
\end{array}$$

$$\begin{array}{rcl}
0744975^2 + 1010000^2 & = & 1255025^2 \\
10200744975^2 + 102010000^2 & = & 10201255025^2 \\
102030200744975^2 + 10202010000^2 & = & 102030201255025^2 \\
1020304030200744975^2 + 1020202010000^2 & = & 1020304030201255025^2 \\
& & (4.505)
\end{array}
\qquad
\begin{array}{rcl}
0736831^2 + 1026000^2 & = & 1263169^2 \\
10200736831^2 + 103626000^2 & = & 10201263169^2 \\
102030200736831^2 + 10363626000^2 & = & 102030201263169^2 \\
1020304030200736831^2 + 1036363626000^2 & = & 1020304030201263169^2 \\
& & (4.513)
\end{array}$$

$$\begin{array}{rcl}
0743964^2 + 1012000^2 & = & 1256036^2 \\
10200743964^2 + 102212000^2 & = & 10201256036^2 \\
102030200743964^2 + 10222212000^2 & = & 102030201256036^2 \\
1020304030200743964^2 + 1022222212000^2 & = & 1020304030201256036^2 \\
& & (4.506)
\end{array}
\qquad
\begin{array}{rcl}
0735804^2 + 1028000^2 & = & 1264196^2 \\
10200735804^2 + 103828000^2 & = & 10201264196^2 \\
102030200735804^2 + 10383828000^2 & = & 102030201264196^2 \\
1020304030200735804^2 + 1038383828000^2 & = & 1020304030201264196^2 \\
& & (4.514)
\end{array}$$

$$\begin{array}{rcl}
0742951^2 + 1014000^2 & = & 1257049^2 \\
10200742951^2 + 102414000^2 & = & 10201257049^2 \\
102030200742951^2 + 10242414000^2 & = & 102030201257049^2 \\
1020304030200742951^2 + 1024242414000^2 & = & 1020304030201257049^2 \\
& & (4.507)
\end{array}
\qquad
\begin{array}{rcl}
0734775^2 + 1030000^2 & = & 1265225^2 \\
10200734775^2 + 104030000^2 & = & 10201265225^2 \\
102030200734775^2 + 10404030000^2 & = & 102030201265225^2 \\
1020304030200734775^2 + 1040404030000^2 & = & 1020304030201265225^2 \\
& & (4.515)
\end{array}$$

$0733744^2 + 1032000^2 = 1266256^2$	$0725424^2 + 1048000^2 = 1274576^2$
$10200733744^2 + 104232000^2 = 10201266256^2$	$10200725424^2 + 105848000^2 = 10201274576^2$
$102030200733744^2 + 10424232000^2 = 102030201266256^2$	$102030200725424^2 + 10585848000^2 = 102030201274576^2$
$1020304030200733744^2 + 1042424232000^2 = 1020304030201266256^2$ (4.516)	$1020304030200725424^2 + 1058585848000^2 = 1020304030201274576^2$ (4.524)
$0732711^2 + 1034000^2 = 1267289^2$	$0724375^2 + 1050000^2 = 1275625^2$
$10200732711^2 + 104434000^2 = 10201267289^2$	$10200724375^2 + 106050000^2 = 10201275625^2$
$102030200732711^2 + 10444434000^2 = 102030201267289^2$	$102030200724375^2 + 10606050000^2 = 102030201275625^2$
$1020304030200732711^2 + 1044444434000^2 = 1020304030201267289^2$ (4.517)	$1020304030200724375^2 + 1060606050000^2 = 1020304030201275625^2$ (4.525)
$0731676^2 + 1036000^2 = 1268324^2$	$0723324^2 + 1052000^2 = 1276676^2$
$10200731676^2 + 104636000^2 = 10201268324^2$	$10200723324^2 + 106252000^2 = 10201276676^2$
$102030200731676^2 + 10464636000^2 = 102030201268324^2$	$102030200723324^2 + 10626252000^2 = 102030201276676^2$
$1020304030200731676^2 + 1046464636000^2 = 1020304030201268324^2$ (4.518)	$1020304030200723324^2 + 1062626252000^2 = 1020304030201276676^2$ (4.526)
$0730639^2 + 1038000^2 = 1269361^2$	$0722271^2 + 1054000^2 = 1277729^2$
$10200730639^2 + 104838000^2 = 10201269361^2$	$10200722271^2 + 106454000^2 = 10201277729^2$
$102030200730639^2 + 10484838000^2 = 102030201269361^2$	$102030200722271^2 + 10646454000^2 = 102030201277729^2$
$1020304030200730639^2 + 1048484838000^2 = 1020304030201269361^2$ (4.519)	$1020304030200722271^2 + 1064646454000^2 = 1020304030201277729^2$ (4.527)
$0729600^2 + 1040000^2 = 1270400^2$	$0721216^2 + 1056000^2 = 1278784^2$
$10200729600^2 + 105040000^2 = 10201270400^2$	$10200721216^2 + 106656000^2 = 10201278784^2$
$102030200729600^2 + 10505040000^2 = 102030201270400^2$	$102030200721216^2 + 10666656000^2 = 102030201278784^2$
$1020304030200729600^2 + 1050505040000^2 = 1020304030201270400^2$ (4.520)	$1020304030200721216^2 + 1066666656000^2 = 1020304030201278784^2$ (4.528)
$0728559^2 + 1042000^2 = 1271441^2$	$0720159^2 + 1058000^2 = 1279841^2$
$10200728559^2 + 105242000^2 = 10201271441^2$	$10200720159^2 + 106858000^2 = 10201279841^2$
$102030200728559^2 + 10525242000^2 = 102030201271441^2$	$102030200720159^2 + 10686858000^2 = 102030201279841^2$
$1020304030200728559^2 + 1052525242000^2 = 1020304030201271441^2$ (4.521)	$1020304030200720159^2 + 1068686858000^2 = 1020304030201279841^2$ (4.529)
$0727516^2 + 1044000^2 = 1272484^2$	$0719100^2 + 1060000^2 = 1280900^2$
$10200727516^2 + 105444000^2 = 10201272484^2$	$10200719100^2 + 107060000^2 = 10201280900^2$
$102030200727516^2 + 10545444000^2 = 102030201272484^2$	$102030200719100^2 + 10707060000^2 = 102030201280900^2$
$1020304030200727516^2 + 1054545444000^2 = 1020304030201272484^2$ (4.522)	$1020304030200719100^2 + 1070707060000^2 = 1020304030201280900^2$ (4.530)
$0726471^2 + 1046000^2 = 1273529^2$	$0718039^2 + 1062000^2 = 1281961^2$
$10200726471^2 + 105646000^2 = 10201273529^2$	$10200718039^2 + 107262000^2 = 10201281961^2$
$102030200726471^2 + 10565646000^2 = 102030201273529^2$	$102030200718039^2 + 10727262000^2 = 102030201281961^2$
$1020304030200726471^2 + 1056565646000^2 = 1020304030201273529^2$ (4.523)	$1020304030200718039^2 + 1072727262000^2 = 1020304030201281961^2$ (4.531)

$$\begin{aligned} 0716976^2 + 1064000^2 &= 1\ 283024^2 & 0708400^2 + 1080000^2 &= 1\ 291600^2 \\ 1020\ 0716976^2 + 107464000^2 &= 10201\ 283024^2 & 1020\ 0708400^2 + 109080000^2 &= 10201\ 291600^2 \\ 10203020\ 0716976^2 + 10747464000^2 &= 102030201\ 283024^2 & 10203020\ 0708400^2 + 10909080000^2 &= 102030201\ 291600^2 \\ 102030403020\ 0716976^2 + 1074747464000^2 &= 1020304030201\ 283024^2 & 102030403020\ 0708400^2 + 1090909080000^2 &= 1020304030201\ 291600^2 \end{aligned}$$

(4.532) (4.540)

$$\begin{aligned} 0715911^2 + 1066000^2 &= 1\ 284089^2 & 0707319^2 + 1082000^2 &= 1\ 292681^2 \\ 1020\ 0715911^2 + 107666000^2 &= 10201\ 284089^2 & 1020\ 0707319^2 + 109282000^2 &= 10201\ 292681^2 \\ 10203020\ 0715911^2 + 10767666000^2 &= 102030201\ 284089^2 & 10203020\ 0707319^2 + 10929282000^2 &= 102030201\ 292681^2 \\ 102030403020\ 0715911^2 + 1076767666000^2 &= 1020304030201\ 284089^2 & 102030403020\ 0707319^2 + 1092929282000^2 &= 1020304030201\ 292681^2 \end{aligned}$$

(4.533) (4.541)

$$\begin{aligned} 0714844^2 + 1068000^2 &= 1\ 285156^2 & 0706236^2 + 1084000^2 &= 1\ 293764^2 \\ 1020\ 0714844^2 + 107868000^2 &= 10201\ 285156^2 & 1020\ 0706236^2 + 109484000^2 &= 10201\ 293764^2 \\ 10203020\ 0714844^2 + 10787868000^2 &= 102030201\ 285156^2 & 10203020\ 0706236^2 + 10949484000^2 &= 102030201\ 293764^2 \\ 102030403020\ 0714844^2 + 1078787868000^2 &= 1020304030201\ 285156^2 & 102030403020\ 0706236^2 + 1094949484000^2 &= 1020304030201\ 293764^2 \end{aligned}$$

(4.534) (4.542)

$$\begin{aligned} 0713775^2 + 1070000^2 &= 1\ 286225^2 & 0705151^2 + 1086000^2 &= 1\ 294849^2 \\ 1020\ 0713775^2 + 108070000^2 &= 10201\ 286225^2 & 1020\ 0705151^2 + 109686000^2 &= 10201\ 294849^2 \\ 10203020\ 0713775^2 + 10808070000^2 &= 102030201\ 286225^2 & 10203020\ 0705151^2 + 10969686000^2 &= 102030201\ 294849^2 \\ 102030403020\ 0713775^2 + 1080808070000^2 &= 1020304030201\ 286225^2 & 102030403020\ 0705151^2 + 1096969686000^2 &= 1020304030201\ 294849^2 \end{aligned}$$

(4.535) (4.543)

$$\begin{aligned} 0712704^2 + 1072000^2 &= 1\ 287296^2 & 0704064^2 + 1088000^2 &= 1\ 295936^2 \\ 1020\ 0712704^2 + 108272000^2 &= 10201\ 287296^2 & 1020\ 0704064^2 + 109888000^2 &= 10201\ 295936^2 \\ 10203020\ 0712704^2 + 10828272000^2 &= 102030201\ 287296^2 & 10203020\ 0704064^2 + 10989888000^2 &= 102030201\ 295936^2 \\ 102030403020\ 0712704^2 + 1082828272000^2 &= 1020304030201\ 287296^2 & 102030403020\ 0704064^2 + 1098989888000^2 &= 1020304030201\ 295936^2 \end{aligned}$$

(4.536) (4.544)

$$\begin{aligned} 0711631^2 + 1074000^2 &= 1\ 288369^2 & 0702975^2 + 1090000^2 &= 1\ 297025^2 \\ 1020\ 0711631^2 + 108474000^2 &= 10201\ 288369^2 & 1020\ 0702975^2 + 110090000^2 &= 10201\ 297025^2 \\ 10203020\ 0711631^2 + 10848474000^2 &= 102030201\ 288369^2 & 10203020\ 0702975^2 + 11010090000^2 &= 102030201\ 297025^2 \\ 102030403020\ 0711631^2 + 1084848474000^2 &= 1020304030201\ 288369^2 & 102030403020\ 0702975^2 + 1101010090000^2 &= 1020304030201\ 297025^2 \end{aligned}$$

(4.537) (4.545)

$$\begin{aligned} 0710556^2 + 1076000^2 &= 1\ 289444^2 & 0701884^2 + 1092000^2 &= 1\ 298116^2 \\ 1020\ 0710556^2 + 108676000^2 &= 10201\ 289444^2 & 1020\ 0701884^2 + 110292000^2 &= 10201\ 298116^2 \\ 10203020\ 0710556^2 + 10868676000^2 &= 102030201\ 289444^2 & 10203020\ 0701884^2 + 11030292000^2 &= 102030201\ 298116^2 \\ 102030403020\ 0710556^2 + 1086868676000^2 &= 1020304030201\ 289444^2 & 102030403020\ 0701884^2 + 1103030292000^2 &= 1020304030201\ 298116^2 \end{aligned}$$

(4.538) (4.546)

$$\begin{aligned} 0709479^2 + 1078000^2 &= 1\ 290521^2 & 0700791^2 + 1094000^2 &= 1\ 299209^2 \\ 1020\ 0709479^2 + 108878000^2 &= 10201\ 290521^2 & 1020\ 0700791^2 + 110494000^2 &= 10201\ 299209^2 \\ 10203020\ 0709479^2 + 10888878000^2 &= 102030201\ 290521^2 & 10203020\ 0700791^2 + 11050494000^2 &= 102030201\ 299209^2 \\ 102030403020\ 0709479^2 + 1088888878000^2 &= 1020304030201\ 290521^2 & 102030403020\ 0700791^2 + 1105050494000^2 &= 1020304030201\ 299209^2 \end{aligned}$$

(4.539) (4.547)

$$\begin{aligned}
0699696^2 + 1096000^2 &= \mathbf{1300304^2} & 0690864^2 + 1112000^2 &= \mathbf{1309136^2} \\
\mathbf{1020}0699696^2 + 110696000^2 &= \mathbf{10201300304^2} & \mathbf{1020}0690864^2 + 112312000^2 &= \mathbf{10201309136^2} \\
\mathbf{10203020}0699696^2 + 11070696000^2 &= \mathbf{102030201300304^2} & \mathbf{10203020}0690864^2 + 11232312000^2 &= \mathbf{102030201309136^2} \\
\mathbf{102030403020}0699696^2 + 1107070696000^2 &= \mathbf{1020304030201300304^2} & \mathbf{102030403020}0690864^2 + 1123232312000^2 &= \mathbf{1020304030201309136^2} \\
&& & (4.548) & & (4.556)
\end{aligned}$$

$$\begin{aligned}
0698599^2 + 1098000^2 &= \mathbf{1301401^2} & 0689751^2 + 1114000^2 &= \mathbf{1310249^2} \\
\mathbf{1020}0698599^2 + 110898000^2 &= \mathbf{10201301401^2} & \mathbf{1020}0689751^2 + 112514000^2 &= \mathbf{10201310249^2} \\
\mathbf{10203020}0698599^2 + 11090898000^2 &= \mathbf{102030201301401^2} & \mathbf{10203020}0689751^2 + 11252514000^2 &= \mathbf{102030201310249^2} \\
\mathbf{102030403020}0698599^2 + 1109090898000^2 &= \mathbf{1020304030201301401^2} & \mathbf{102030403020}0689751^2 + 1125252514000^2 &= \mathbf{1020304030201310249^2} \\
&& & (4.549) & & (4.557)
\end{aligned}$$

$$\begin{aligned}
0697500^2 + 1100000^2 &= \mathbf{1302500^2} & 0688636^2 + 1116000^2 &= \mathbf{1311364^2} \\
\mathbf{1020}0697500^2 + 111100000^2 &= \mathbf{10201302500^2} & \mathbf{1020}0688636^2 + 112716000^2 &= \mathbf{10201311364^2} \\
\mathbf{10203020}0697500^2 + 11111100000^2 &= \mathbf{102030201302500^2} & \mathbf{10203020}0688636^2 + 11272716000^2 &= \mathbf{102030201311364^2} \\
\mathbf{102030403020}0697500^2 + 111111100000^2 &= \mathbf{1020304030201302500^2} & \mathbf{102030403020}0688636^2 + 1127272716000^2 &= \mathbf{1020304030201311364^2} \\
&& & (4.550) & & (4.558)
\end{aligned}$$

$$\begin{aligned}
0696399^2 + 1102000^2 &= \mathbf{1303601^2} & 0687519^2 + 1118000^2 &= \mathbf{1312481^2} \\
\mathbf{1020}0696399^2 + 111302000^2 &= \mathbf{10201303601^2} & \mathbf{1020}0687519^2 + 112918000^2 &= \mathbf{10201312481^2} \\
\mathbf{10203020}0696399^2 + 11131302000^2 &= \mathbf{102030201303601^2} & \mathbf{10203020}0687519^2 + 11292918000^2 &= \mathbf{102030201312481^2} \\
\mathbf{102030403020}0696399^2 + 1113131302000^2 &= \mathbf{1020304030201303601^2} & \mathbf{102030403020}0687519^2 + 1129292918000^2 &= \mathbf{1020304030201312481^2} \\
&& & (4.551) & & (4.559)
\end{aligned}$$

$$\begin{aligned}
0695296^2 + 1104000^2 &= \mathbf{1304704^2} & 0686400^2 + 1120000^2 &= \mathbf{1313600^2} \\
\mathbf{1020}0695296^2 + 111504000^2 &= \mathbf{10201304704^2} & \mathbf{1020}0686400^2 + 113120000^2 &= \mathbf{10201313600^2} \\
\mathbf{10203020}0695296^2 + 11151504000^2 &= \mathbf{102030201304704^2} & \mathbf{10203020}0686400^2 + 11313120000^2 &= \mathbf{102030201313600^2} \\
\mathbf{102030403020}0695296^2 + 1115151504000^2 &= \mathbf{1020304030201304704^2} & \mathbf{102030403020}0686400^2 + 1131313120000^2 &= \mathbf{1020304030201313600^2} \\
&& & (4.552) & & (4.560)
\end{aligned}$$

$$\begin{aligned}
0694191^2 + 1106000^2 &= \mathbf{1305809^2} & 0685279^2 + 1122000^2 &= \mathbf{1314721^2} \\
\mathbf{1020}0694191^2 + 111706000^2 &= \mathbf{10201305809^2} & \mathbf{1020}0685279^2 + 113322000^2 &= \mathbf{10201314721^2} \\
\mathbf{10203020}0694191^2 + 11171706000^2 &= \mathbf{102030201305809^2} & \mathbf{10203020}0685279^2 + 11333322000^2 &= \mathbf{102030201314721^2} \\
\mathbf{102030403020}0694191^2 + 1117171706000^2 &= \mathbf{1020304030201305809^2} & \mathbf{102030403020}0685279^2 + 1133333322000^2 &= \mathbf{1020304030201314721^2} \\
&& & (4.553) & & (4.561)
\end{aligned}$$

$$\begin{aligned}
0693084^2 + 1108000^2 &= \mathbf{1306916^2} & 0684156^2 + 1124000^2 &= \mathbf{1315844^2} \\
\mathbf{1020}0693084^2 + 111908000^2 &= \mathbf{10201306916^2} & \mathbf{1020}0684156^2 + 113524000^2 &= \mathbf{10201315844^2} \\
\mathbf{10203020}0693084^2 + 11191908000^2 &= \mathbf{102030201306916^2} & \mathbf{10203020}0684156^2 + 11353524000^2 &= \mathbf{102030201315844^2} \\
\mathbf{102030403020}0693084^2 + 1119191908000^2 &= \mathbf{1020304030201306916^2} & \mathbf{102030403020}0684156^2 + 1135353524000^2 &= \mathbf{1020304030201315844^2} \\
&& & (4.554) & & (4.562)
\end{aligned}$$

$$\begin{aligned}
0691975^2 + 1110000^2 &= \mathbf{1308025^2} & 0683031^2 + 1126000^2 &= \mathbf{1316969^2} \\
\mathbf{1020}0691975^2 + 112110000^2 &= \mathbf{10201308025^2} & \mathbf{1020}0683031^2 + 113726000^2 &= \mathbf{10201316969^2} \\
\mathbf{10203020}0691975^2 + 11212110000^2 &= \mathbf{102030201308025^2} & \mathbf{10203020}0683031^2 + 11373726000^2 &= \mathbf{102030201316969^2} \\
\mathbf{102030403020}0691975^2 + 1121212110000^2 &= \mathbf{1020304030201308025^2} & \mathbf{102030403020}0683031^2 + 1137373726000^2 &= \mathbf{1020304030201316969^2} \\
&& & (4.555) & & (4.563)
\end{aligned}$$

$0681904^2 + 1128000^2 = 1318096^2$	$0672816^2 + 1144000^2 = 1327184^2$
$10200681904^2 + 113928000^2 = 10201318096^2$	$10200672816^2 + 115544000^2 = 10201327184^2$
$102030200681904^2 + 11393928000^2 = 102030201318096^2$	$102030200672816^2 + 11555544000^2 = 102030201327184^2$
$1020304030200681904^2 + 1139393928000^2 = 1020304030201318096^2$ (4.564)	$1020304030200672816^2 + 1155555544000^2 = 1020304030201327184^2$ (4.572)
$0680775^2 + 1130000^2 = 1319225^2$	$0671671^2 + 1146000^2 = 1328329^2$
$10200680775^2 + 114130000^2 = 10201319225^2$	$10200671671^2 + 115746000^2 = 10201328329^2$
$102030200680775^2 + 11414130000^2 = 102030201319225^2$	$102030200671671^2 + 11575746000^2 = 102030201328329^2$
$1020304030200680775^2 + 1141414130000^2 = 1020304030201319225^2$ (4.565)	$1020304030200671671^2 + 1157575746000^2 = 1020304030201328329^2$ (4.573)
$0679644^2 + 1132000^2 = 1320356^2$	$0670524^2 + 1148000^2 = 1329476^2$
$10200679644^2 + 114332000^2 = 10201320356^2$	$10200670524^2 + 115948000^2 = 10201329476^2$
$102030200679644^2 + 11434332000^2 = 102030201320356^2$	$102030200670524^2 + 11595948000^2 = 102030201329476^2$
$1020304030200679644^2 + 1143434332000^2 = 1020304030201320356^2$ (4.566)	$1020304030200670524^2 + 1159595948000^2 = 1020304030201329476^2$ (4.574)
$0678511^2 + 1134000^2 = 1321489^2$	$0669375^2 + 1150000^2 = 1330625^2$
$10200678511^2 + 114534000^2 = 10201321489^2$	$10200669375^2 + 116150000^2 = 10201330625^2$
$102030200678511^2 + 11454534000^2 = 102030201321489^2$	$102030200669375^2 + 11616150000^2 = 102030201330625^2$
$1020304030200678511^2 + 1145454534000^2 = 1020304030201321489^2$ (4.567)	$1020304030200669375^2 + 1161616150000^2 = 1020304030201330625^2$ (4.575)
$0677376^2 + 1136000^2 = 1322624^2$	$0668224^2 + 1152000^2 = 1331776^2$
$10200677376^2 + 114736000^2 = 10201322624^2$	$10200668224^2 + 116352000^2 = 10201331776^2$
$102030200677376^2 + 11474736000^2 = 102030201322624^2$	$102030200668224^2 + 11636352000^2 = 102030201331776^2$
$1020304030200677376^2 + 1147474736000^2 = 1020304030201322624^2$ (4.568)	$1020304030200668224^2 + 1163636352000^2 = 1020304030201331776^2$ (4.576)
$0676239^2 + 1138000^2 = 1323761^2$	$0667071^2 + 1154000^2 = 1332929^2$
$10200676239^2 + 114938000^2 = 10201323761^2$	$10200667071^2 + 116554000^2 = 10201332929^2$
$102030200676239^2 + 11494938000^2 = 102030201323761^2$	$102030200667071^2 + 11656554000^2 = 102030201332929^2$
$1020304030200676239^2 + 1149494938000^2 = 1020304030201323761^2$ (4.569)	$1020304030200667071^2 + 1165656554000^2 = 1020304030201332929^2$ (4.577)
$0675100^2 + 1140000^2 = 1324900^2$	$0665916^2 + 1156000^2 = 1334084^2$
$10200675100^2 + 115140000^2 = 10201324900^2$	$10200665916^2 + 116756000^2 = 10201334084^2$
$102030200675100^2 + 11515140000^2 = 102030201324900^2$	$102030200665916^2 + 11676756000^2 = 102030201334084^2$
$1020304030200675100^2 + 1151515140000^2 = 1020304030201324900^2$ (4.570)	$1020304030200665916^2 + 1167676756000^2 = 1020304030201334084^2$ (4.578)
$0673959^2 + 1142000^2 = 1326041^2$	$0664759^2 + 1158000^2 = 1335241^2$
$10200673959^2 + 115342000^2 = 10201326041^2$	$10200664759^2 + 116958000^2 = 10201335241^2$
$102030200673959^2 + 11535342000^2 = 102030201326041^2$	$102030200664759^2 + 11696958000^2 = 102030201335241^2$
$1020304030200673959^2 + 1153535342000^2 = 1020304030201326041^2$ (4.571)	$1020304030200664759^2 + 1169696958000^2 = 1020304030201335241^2$ (4.579)

$0663600^2 + 1160000^2 = 1336400^2$	$0654256^2 + 1176000^2 = 1345744^2$
$10200663600^2 + 117160000^2 = 10201336400^2$	$10200654256^2 + 118776000^2 = 10201345744^2$
$102030200663600^2 + 11717160000^2 = 102030201336400^2$	$102030200654256^2 + 11878776000^2 = 102030201345744^2$
$1020304030200663600^2 + 1171717160000^2 = 1020304030201336400^2$ (4.580)	$1020304030200654256^2 + 1187878776000^2 = 1020304030201345744^2$ (4.588)

$0662439^2 + 1162000^2 = 1337561^2$	$0653079^2 + 1178000^2 = 1346921^2$
$10200662439^2 + 117362000^2 = 10201337561^2$	$10200653079^2 + 118978000^2 = 10201346921^2$
$102030200662439^2 + 11737362000^2 = 102030201337561^2$	$102030200653079^2 + 11898978000^2 = 102030201346921^2$
$1020304030200662439^2 + 1173737362000^2 = 1020304030201337561^2$ (4.581)	$1020304030200653079^2 + 1189898978000^2 = 1020304030201346921^2$ (4.589)

$0661276^2 + 1164000^2 = 1338724^2$	$0651900^2 + 1180000^2 = 1348100^2$
$10200661276^2 + 117564000^2 = 10201338724^2$	$10200651900^2 + 119180000^2 = 10201348100^2$
$102030200661276^2 + 11757564000^2 = 102030201338724^2$	$102030200651900^2 + 11919180000^2 = 102030201348100^2$
$1020304030200661276^2 + 1175757564000^2 = 1020304030201338724^2$ (4.582)	$1020304030200651900^2 + 1191919180000^2 = 1020304030201348100^2$ (4.590)

$0660111^2 + 1166000^2 = 1339889^2$	$0650719^2 + 1182000^2 = 1349281^2$
$10200660111^2 + 117766000^2 = 10201339889^2$	$10200650719^2 + 119382000^2 = 10201349281^2$
$102030200660111^2 + 11777766000^2 = 102030201339889^2$	$102030200650719^2 + 11939382000^2 = 102030201349281^2$
$1020304030200660111^2 + 1177777766000^2 = 1020304030201339889^2$ (4.583)	$1020304030200650719^2 + 1193939382000^2 = 1020304030201349281^2$ (4.591)

$0658944^2 + 1168000^2 = 1341056^2$	$0649536^2 + 1184000^2 = 1350464^2$
$10200658944^2 + 117968000^2 = 10201341056^2$	$10200649536^2 + 119584000^2 = 10201350464^2$
$102030200658944^2 + 11797968000^2 = 102030201341056^2$	$102030200649536^2 + 11959584000^2 = 102030201350464^2$
$1020304030200658944^2 + 1179797968000^2 = 1020304030201341056^2$ (4.584)	$1020304030200649536^2 + 1195959584000^2 = 1020304030201350464^2$ (4.592)

$0657775^2 + 1170000^2 = 1342225^2$	$0648351^2 + 1186000^2 = 1351649^2$
$10200657775^2 + 118170000^2 = 10201342225^2$	$10200648351^2 + 119786000^2 = 10201351649^2$
$102030200657775^2 + 11818170000^2 = 102030201342225^2$	$102030200648351^2 + 11979786000^2 = 102030201351649^2$
$1020304030200657775^2 + 1181818170000^2 = 1020304030201342225^2$ (4.585)	$1020304030200648351^2 + 1197979786000^2 = 1020304030201351649^2$ (4.593)

$0656604^2 + 1172000^2 = 1343396^2$	$0647164^2 + 1188000^2 = 1352836^2$
$10200656604^2 + 118372000^2 = 10201343396^2$	$10200647164^2 + 119988000^2 = 10201352836^2$
$102030200656604^2 + 11838372000^2 = 102030201343396^2$	$102030200647164^2 + 11999988000^2 = 102030201352836^2$
$1020304030200656604^2 + 1183838372000^2 = 1020304030201343396^2$ (4.586)	$1020304030200647164^2 + 1199999988000^2 = 1020304030201352836^2$ (4.594)

$0655431^2 + 1174000^2 = 1344569^2$	$0645975^2 + 1190000^2 = 1354025^2$
$10200655431^2 + 118574000^2 = 10201344569^2$	$10200645975^2 + 120190000^2 = 10201354025^2$
$102030200655431^2 + 11858574000^2 = 102030201344569^2$	$102030200645975^2 + 12020190000^2 = 102030201354025^2$
$1020304030200655431^2 + 1185858574000^2 = 1020304030201344569^2$ (4.587)	$1020304030200645975^2 + 1202020190000^2 = 1020304030201354025^2$ (4.595)

$$\begin{array}{lcl}
0644784^2 + 1192000^2 & = & 1355216^2 \\
10200644784^2 + 120392000^2 & = & 10201355216^2 \\
102030200644784^2 + 12040392000^2 & = & 102030201355216^2 \\
1020304030200644784^2 + 1204040392000^2 & = & 1020304030201355216^2 \\
& & (4.596)
\end{array}
\qquad
\begin{array}{lcl}
0642396^2 + 1196000^2 & = & 1357604^2 \\
10200642396^2 + 120796000^2 & = & 10201357604^2 \\
102030200642396^2 + 12080796000^2 & = & 102030201357604^2 \\
1020304030200642396^2 + 1208080796000^2 & = & 1020304030201357604^2 \\
& & (4.598)
\end{array}$$

$$\begin{array}{lcl}
0643591^2 + 1194000^2 & = & 1356409^2 \\
10200643591^2 + 120594000^2 & = & 10201356409^2 \\
102030200643591^2 + 12060594000^2 & = & 102030201356409^2 \\
1020304030200643591^2 + 1206060594000^2 & = & 1020304030201356409^2 \\
& & (4.597)
\end{array}
\qquad
\begin{array}{lcl}
0641199^2 + 1198000^2 & = & 1358801^2 \\
10200641199^2 + 120998000^2 & = & 10201358801^2 \\
102030200641199^2 + 12100998000^2 & = & 102030201358801^2 \\
1020304030200641199^2 + 1210100998000^2 & = & 1020304030201358801^2 \\
& & (4.599)
\end{array}$$

#### 4.7 For $n = 600, 601, 601, \dots, 697, 698, 699$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 600, 601, 601, \dots, 697, 698, 699$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$$\begin{array}{lcl}
0640000^2 + 1200000^2 & = & 1360000^2 \\
10200640000^2 + 121200000^2 & = & 10201360000^2 \\
102030200640000^2 + 12121200000^2 & = & 102030201360000^2 \\
1020304030200640000^2 + 1212121200000^2 & = & 1020304030201360000^2 \\
& & (4.600)
\end{array}
\qquad
\begin{array}{lcl}
0635184^2 + 1208000^2 & = & 1364816^2 \\
10200635184^2 + 122008000^2 & = & 10201364816^2 \\
102030200635184^2 + 12202008000^2 & = & 102030201364816^2 \\
1020304030200635184^2 + 1220202008000^2 & = & 1020304030201364816^2 \\
& & (4.604)
\end{array}$$

$$\begin{array}{lcl}
0638799^2 + 1202000^2 & = & 1361201^2 \\
10200638799^2 + 121402000^2 & = & 10201361201^2 \\
102030200638799^2 + 12141402000^2 & = & 102030201361201^2 \\
1020304030200638799^2 + 1214141402000^2 & = & 1020304030201361201^2 \\
& & (4.601)
\end{array}
\qquad
\begin{array}{lcl}
0633975^2 + 1210000^2 & = & 1366025^2 \\
10200633975^2 + 122210000^2 & = & 10201366025^2 \\
102030200633975^2 + 12222210000^2 & = & 102030201366025^2 \\
1020304030200633975^2 + 1222222210000^2 & = & 1020304030201366025^2 \\
& & (4.605)
\end{array}$$

$$\begin{array}{lcl}
0637596^2 + 1204000^2 & = & 1362404^2 \\
10200637596^2 + 121604000^2 & = & 10201362404^2 \\
102030200637596^2 + 12161604000^2 & = & 102030201362404^2 \\
1020304030200637596^2 + 1216161604000^2 & = & 1020304030201362404^2 \\
& & (4.602)
\end{array}
\qquad
\begin{array}{lcl}
0632764^2 + 1212000^2 & = & 1367236^2 \\
10200632764^2 + 122412000^2 & = & 10201367236^2 \\
102030200632764^2 + 12242412000^2 & = & 102030201367236^2 \\
1020304030200632764^2 + 1224242412000^2 & = & 1020304030201367236^2 \\
& & (4.606)
\end{array}$$

$$\begin{array}{lcl}
0636391^2 + 1206000^2 & = & 1363609^2 \\
10200636391^2 + 121806000^2 & = & 10201363609^2 \\
102030200636391^2 + 12181806000^2 & = & 102030201363609^2 \\
1020304030200636391^2 + 1218181806000^2 & = & 1020304030201363609^2 \\
& & (4.603)
\end{array}
\qquad
\begin{array}{lcl}
0631551^2 + 1214000^2 & = & 1368449^2 \\
10200631551^2 + 122614000^2 & = & 10201368449^2 \\
102030200631551^2 + 12262614000^2 & = & 102030201368449^2 \\
1020304030200631551^2 + 1226262614000^2 & = & 1020304030201368449^2 \\
& & (4.607)
\end{array}$$

$$\begin{aligned}
0630336^2 + 1216000^2 &= 1369664^2 & 0620544^2 + 1232000^2 &= 1379456^2 \\
10200630336^2 + 122816000^2 &= 10201369664^2 & 10200620544^2 + 124432000^2 &= 10201379456^2 \\
102030200630336^2 + 12282816000^2 &= 102030201369664^2 & 102030200620544^2 + 12444432000^2 &= 102030201379456^2 \\
1020304030200630336^2 + 1228282816000^2 &= 1020304030201369664^2 & 1020304030200620544^2 + 1244444432000^2 &= 1020304030201379456^2 \\
&& & (4.608) & & (4.616)
\end{aligned}$$

$$\begin{aligned}
0629119^2 + 1218000^2 &= 1370881^2 & 0619311^2 + 1234000^2 &= 1380689^2 \\
10200629119^2 + 123018000^2 &= 10201370881^2 & 10200619311^2 + 124634000^2 &= 10201380689^2 \\
102030200629119^2 + 12303018000^2 &= 102030201370881^2 & 102030200619311^2 + 12464634000^2 &= 102030201380689^2 \\
1020304030200629119^2 + 1230303018000^2 &= 1020304030201370881^2 & 1020304030200619311^2 + 1246464634000^2 &= 1020304030201380689^2 \\
&& & (4.609) & & (4.617)
\end{aligned}$$

$$\begin{aligned}
0627900^2 + 1220000^2 &= 1372100^2 & 0618076^2 + 1236000^2 &= 1381924^2 \\
10200627900^2 + 123220000^2 &= 10201372100^2 & 10200618076^2 + 124836000^2 &= 10201381924^2 \\
102030200627900^2 + 12323220000^2 &= 102030201372100^2 & 102030200618076^2 + 12484836000^2 &= 102030201381924^2 \\
1020304030200627900^2 + 1232323220000^2 &= 1020304030201372100^2 & 1020304030200618076^2 + 1248484836000^2 &= 1020304030201381924^2 \\
&& & (4.610) & & (4.618)
\end{aligned}$$

$$\begin{aligned}
0626679^2 + 1222000^2 &= 1373321^2 & 0616839^2 + 1238000^2 &= 1383161^2 \\
10200626679^2 + 123422000^2 &= 10201373321^2 & 10200616839^2 + 125038000^2 &= 10201383161^2 \\
102030200626679^2 + 12343422000^2 &= 102030201373321^2 & 102030200616839^2 + 12505038000^2 &= 102030201383161^2 \\
1020304030200626679^2 + 1234343422000^2 &= 1020304030201373321^2 & 1020304030200616839^2 + 1250505038000^2 &= 1020304030201383161^2 \\
&& & (4.611) & & (4.619)
\end{aligned}$$

$$\begin{aligned}
0625456^2 + 1224000^2 &= 1374544^2 & 0615600^2 + 1240000^2 &= 1384400^2 \\
10200625456^2 + 123624000^2 &= 10201374544^2 & 10200615600^2 + 125240000^2 &= 10201384400^2 \\
102030200625456^2 + 12363624000^2 &= 102030201374544^2 & 102030200615600^2 + 12525240000^2 &= 102030201384400^2 \\
1020304030200625456^2 + 1236363624000^2 &= 1020304030201374544^2 & 1020304030200615600^2 + 1252525240000^2 &= 1020304030201384400^2 \\
&& & (4.612) & & (4.620)
\end{aligned}$$

$$\begin{aligned}
0624231^2 + 1226000^2 &= 1375769^2 & 0614359^2 + 1242000^2 &= 1385641^2 \\
10200624231^2 + 123826000^2 &= 10201375769^2 & 10200614359^2 + 125442000^2 &= 10201385641^2 \\
102030200624231^2 + 12383826000^2 &= 102030201375769^2 & 102030200614359^2 + 12545442000^2 &= 102030201385641^2 \\
1020304030200624231^2 + 1238383826000^2 &= 1020304030201375769^2 & 1020304030200614359^2 + 1254545442000^2 &= 1020304030201385641^2 \\
&& & (4.613) & & (4.621)
\end{aligned}$$

$$\begin{aligned}
0623004^2 + 1228000^2 &= 1376996^2 & 0613116^2 + 1244000^2 &= 1386884^2 \\
10200623004^2 + 124028000^2 &= 10201376996^2 & 10200613116^2 + 125644000^2 &= 10201386884^2 \\
102030200623004^2 + 12404028000^2 &= 102030201376996^2 & 102030200613116^2 + 12565644000^2 &= 102030201386884^2 \\
1020304030200623004^2 + 1240404028000^2 &= 1020304030201376996^2 & 1020304030200613116^2 + 1256565644000^2 &= 1020304030201386884^2 \\
&& & (4.614) & & (4.622)
\end{aligned}$$

$$\begin{aligned}
0621775^2 + 1230000^2 &= 1378225^2 & 0611871^2 + 1246000^2 &= 1388129^2 \\
10200621775^2 + 124230000^2 &= 10201378225^2 & 10200611871^2 + 125846000^2 &= 10201388129^2 \\
102030200621775^2 + 12424230000^2 &= 102030201378225^2 & 102030200611871^2 + 12585846000^2 &= 102030201388129^2 \\
1020304030200621775^2 + 1242424230000^2 &= 1020304030201378225^2 & 1020304030200611871^2 + 1258585846000^2 &= 1020304030201388129^2 \\
&& & (4.615) & & (4.623)
\end{aligned}$$



$0610624^2 + 1248000^2 = 1389376^2$	$0600576^2 + 1264000^2 = 1399424^2$
$10200610624^2 + 126048000^2 = 10201389376^2$	$10200600576^2 + 127664000^2 = 10201399424^2$
$102030200610624^2 + 12606048000^2 = 102030201389376^2$	$102030200600576^2 + 12767664000^2 = 102030201399424^2$
$1020304030200610624^2 + 1260606048000^2 = 1020304030201389376^2$ (4.624)	$1020304030200600576^2 + 1276767664000^2 = 1020304030201399424^2$ (4.632)
$0609375^2 + 1250000^2 = 1390625^2$	$0599311^2 + 1266000^2 = 1400689^2$
$10200609375^2 + 126250000^2 = 10201390625^2$	$10200599311^2 + 127866000^2 = 10201400689^2$
$102030200609375^2 + 12626250000^2 = 102030201390625^2$	$102030200599311^2 + 12787866000^2 = 102030201400689^2$
$1020304030200609375^2 + 1262626250000^2 = 1020304030201390625^2$ (4.625)	$1020304030200599311^2 + 1278787866000^2 = 1020304030201400689^2$ (4.633)
$0608124^2 + 1252000^2 = 1391876^2$	$0598044^2 + 1268000^2 = 1401956^2$
$10200608124^2 + 126452000^2 = 10201391876^2$	$10200598044^2 + 128068000^2 = 10201401956^2$
$102030200608124^2 + 12646452000^2 = 102030201391876^2$	$102030200598044^2 + 12808068000^2 = 102030201401956^2$
$1020304030200608124^2 + 1264646452000^2 = 1020304030201391876^2$ (4.626)	$1020304030200598044^2 + 1280808068000^2 = 1020304030201401956^2$ (4.634)
$0606871^2 + 1254000^2 = 1393129^2$	$0596775^2 + 1270000^2 = 1403225^2$
$10200606871^2 + 126654000^2 = 10201393129^2$	$10200596775^2 + 128270000^2 = 10201403225^2$
$102030200606871^2 + 12666654000^2 = 102030201393129^2$	$102030200596775^2 + 12828270000^2 = 102030201403225^2$
$1020304030200606871^2 + 1266666654000^2 = 1020304030201393129^2$ (4.627)	$1020304030200596775^2 + 1282828270000^2 = 1020304030201403225^2$ (4.635)
$0605616^2 + 1256000^2 = 1394384^2$	$0595504^2 + 1272000^2 = 1404496^2$
$10200605616^2 + 126856000^2 = 10201394384^2$	$10200595504^2 + 128472000^2 = 10201404496^2$
$102030200605616^2 + 12686856000^2 = 102030201394384^2$	$102030200595504^2 + 12848472000^2 = 102030201404496^2$
$1020304030200605616^2 + 1268686856000^2 = 1020304030201394384^2$ (4.628)	$1020304030200595504^2 + 1284848472000^2 = 1020304030201404496^2$ (4.636)
$0604359^2 + 1258000^2 = 1395641^2$	$0594231^2 + 1274000^2 = 1405769^2$
$10200604359^2 + 127058000^2 = 10201395641^2$	$10200594231^2 + 128674000^2 = 10201405769^2$
$102030200604359^2 + 12707058000^2 = 102030201395641^2$	$102030200594231^2 + 12868674000^2 = 102030201405769^2$
$1020304030200604359^2 + 1270707058000^2 = 1020304030201395641^2$ (4.629)	$1020304030200594231^2 + 1286868674000^2 = 1020304030201405769^2$ (4.637)
$0603100^2 + 1260000^2 = 1396900^2$	$0592956^2 + 1276000^2 = 1407044^2$
$10200603100^2 + 127260000^2 = 10201396900^2$	$10200592956^2 + 128876000^2 = 10201407044^2$
$102030200603100^2 + 12727260000^2 = 102030201396900^2$	$102030200592956^2 + 12888876000^2 = 102030201407044^2$
$1020304030200603100^2 + 1272727260000^2 = 1020304030201396900^2$ (4.630)	$1020304030200592956^2 + 1288888876000^2 = 1020304030201407044^2$ (4.638)
$0601839^2 + 1262000^2 = 1398161^2$	$0591679^2 + 1278000^2 = 1408321^2$
$10200601839^2 + 127462000^2 = 10201398161^2$	$10200591679^2 + 129078000^2 = 10201408321^2$
$102030200601839^2 + 12747462000^2 = 102030201398161^2$	$102030200591679^2 + 12909078000^2 = 102030201408321^2$
$1020304030200601839^2 + 1274747462000^2 = 1020304030201398161^2$ (4.631)	$1020304030200591679^2 + 1290909078000^2 = 1020304030201408321^2$ (4.639)

$0590400^2 + 1280000^2 = 1409600^2$	$0580096^2 + 1296000^2 = 1419904^2$
$10200590400^2 + 129280000^2 = 10201409600^2$	$10200580096^2 + 130896000^2 = 10201419904^2$
$102030200590400^2 + 12929280000^2 = 102030201409600^2$	$102030200580096^2 + 13090896000^2 = 102030201419904^2$
$1020304030200590400^2 + 1292929280000^2 = 1020304030201409600^2$ (4.640)	$1020304030200580096^2 + 1309090896000^2 = 1020304030201419904^2$ (4.648)
$0589119^2 + 1282000^2 = 1410881^2$	$0578799^2 + 1298000^2 = 1421201^2$
$10200589119^2 + 129482000^2 = 10201410881^2$	$10200578799^2 + 131098000^2 = 10201421201^2$
$102030200589119^2 + 12949482000^2 = 102030201410881^2$	$102030200578799^2 + 13111098000^2 = 102030201421201^2$
$1020304030200589119^2 + 1294949482000^2 = 1020304030201410881^2$ (4.641)	$1020304030200578799^2 + 1311111098000^2 = 1020304030201421201^2$ (4.649)
$0587836^2 + 1284000^2 = 1412164^2$	$0577500^2 + 1300000^2 = 1422500^2$
$10200587836^2 + 129684000^2 = 10201412164^2$	$10200577500^2 + 131300000^2 = 10201422500^2$
$102030200587836^2 + 12969684000^2 = 102030201412164^2$	$102030200577500^2 + 13131300000^2 = 102030201422500^2$
$1020304030200587836^2 + 1296969684000^2 = 1020304030201412164^2$ (4.642)	$1020304030200577500^2 + 1313131300000^2 = 1020304030201422500^2$ (4.650)
$0586551^2 + 1286000^2 = 1413449^2$	$0576199^2 + 1302000^2 = 1423801^2$
$10200586551^2 + 129886000^2 = 10201413449^2$	$10200576199^2 + 131502000^2 = 10201423801^2$
$102030200586551^2 + 12989886000^2 = 102030201413449^2$	$102030200576199^2 + 13151502000^2 = 102030201423801^2$
$1020304030200586551^2 + 1298989886000^2 = 1020304030201413449^2$ (4.643)	$1020304030200576199^2 + 1315151502000^2 = 1020304030201423801^2$ (4.651)
$0585264^2 + 1288000^2 = 1414736^2$	$0574896^2 + 1304000^2 = 1425104^2$
$10200585264^2 + 130088000^2 = 10201414736^2$	$10200574896^2 + 131704000^2 = 10201425104^2$
$102030200585264^2 + 13010088000^2 = 102030201414736^2$	$102030200574896^2 + 13171704000^2 = 102030201425104^2$
$1020304030200585264^2 + 1301010088000^2 = 1020304030201414736^2$ (4.644)	$1020304030200574896^2 + 1317171704000^2 = 1020304030201425104^2$ (4.652)
$0583975^2 + 1290000^2 = 1416025^2$	$0573591^2 + 1306000^2 = 1426409^2$
$10200583975^2 + 130290000^2 = 10201416025^2$	$10200573591^2 + 131906000^2 = 10201426409^2$
$102030200583975^2 + 13030290000^2 = 102030201416025^2$	$102030200573591^2 + 13191906000^2 = 102030201426409^2$
$1020304030200583975^2 + 1303030290000^2 = 1020304030201416025^2$ (4.645)	$1020304030200573591^2 + 1319191906000^2 = 1020304030201426409^2$ (4.653)
$0582684^2 + 1292000^2 = 1417316^2$	$0572284^2 + 1308000^2 = 1427716^2$
$10200582684^2 + 130492000^2 = 10201417316^2$	$10200572284^2 + 132108000^2 = 10201427716^2$
$102030200582684^2 + 13050492000^2 = 102030201417316^2$	$102030200572284^2 + 13212108000^2 = 102030201427716^2$
$1020304030200582684^2 + 1305050492000^2 = 1020304030201417316^2$ (4.646)	$1020304030200572284^2 + 1321212108000^2 = 1020304030201427716^2$ (4.654)
$0581391^2 + 1294000^2 = 1418609^2$	$0570975^2 + 1310000^2 = 1429025^2$
$10200581391^2 + 130694000^2 = 10201418609^2$	$10200570975^2 + 132310000^2 = 10201429025^2$
$102030200581391^2 + 13070694000^2 = 102030201418609^2$	$102030200570975^2 + 13232310000^2 = 102030201429025^2$
$1020304030200581391^2 + 1307070694000^2 = 1020304030201418609^2$ (4.647)	$1020304030200570975^2 + 1323232310000^2 = 1020304030201429025^2$ (4.655)

$$\begin{array}{lll}
0569664^2 + 1312000^2 & = & 1430336^2 \\
10200569664^2 + 132512000^2 & = & 10201430336^2 \\
102030200569664^2 + 13252512000^2 & = & 102030201430336^2 \\
1020304030200569664^2 + 1325252512000^2 & = & 1020304030201430336^2 \\
& & (4.656)
\end{array}
\qquad
\begin{array}{lll}
0559104^2 + 1328000^2 & = & 1440896^2 \\
10200559104^2 + 134128000^2 & = & 10201440896^2 \\
102030200559104^2 + 13414128000^2 & = & 102030201440896^2 \\
1020304030200559104^2 + 1341414128000^2 & = & 1020304030201440896^2 \\
& & (4.664)
\end{array}$$

$$\begin{array}{lll}
0568351^2 + 1314000^2 & = & 1431649^2 \\
10200568351^2 + 132714000^2 & = & 10201431649^2 \\
102030200568351^2 + 13272714000^2 & = & 102030201431649^2 \\
1020304030200568351^2 + 1327272714000^2 & = & 1020304030201431649^2 \\
& & (4.657)
\end{array}
\qquad
\begin{array}{lll}
0557775^2 + 1330000^2 & = & 1442225^2 \\
10200557775^2 + 134330000^2 & = & 10201442225^2 \\
102030200557775^2 + 13434330000^2 & = & 102030201442225^2 \\
1020304030200557775^2 + 1343434330000^2 & = & 1020304030201442225^2 \\
& & (4.665)
\end{array}$$

$$\begin{array}{lll}
0567036^2 + 1316000^2 & = & 1432964^2 \\
10200567036^2 + 132916000^2 & = & 10201432964^2 \\
102030200567036^2 + 13292916000^2 & = & 102030201432964^2 \\
1020304030200567036^2 + 1329292916000^2 & = & 1020304030201432964^2 \\
& & (4.658)
\end{array}
\qquad
\begin{array}{lll}
0556444^2 + 1332000^2 & = & 1443556^2 \\
10200556444^2 + 134532000^2 & = & 10201443556^2 \\
102030200556444^2 + 13454532000^2 & = & 102030201443556^2 \\
1020304030200556444^2 + 1345454532000^2 & = & 1020304030201443556^2 \\
& & (4.666)
\end{array}$$

$$\begin{array}{lll}
0565719^2 + 1318000^2 & = & 1434281^2 \\
10200565719^2 + 133118000^2 & = & 10201434281^2 \\
102030200565719^2 + 13313118000^2 & = & 102030201434281^2 \\
1020304030200565719^2 + 1331313118000^2 & = & 1020304030201434281^2 \\
& & (4.659)
\end{array}
\qquad
\begin{array}{lll}
0555111^2 + 1334000^2 & = & 1444889^2 \\
10200555111^2 + 134734000^2 & = & 10201444889^2 \\
102030200555111^2 + 13474734000^2 & = & 102030201444889^2 \\
1020304030200555111^2 + 1347474734000^2 & = & 1020304030201444889^2 \\
& & (4.667)
\end{array}$$

$$\begin{array}{lll}
0564400^2 + 1320000^2 & = & 1435600^2 \\
10200564400^2 + 133320000^2 & = & 10201435600^2 \\
102030200564400^2 + 13333320000^2 & = & 102030201435600^2 \\
1020304030200564400^2 + 1333333320000^2 & = & 1020304030201435600^2 \\
& & (4.660)
\end{array}
\qquad
\begin{array}{lll}
0553776^2 + 1336000^2 & = & 1446224^2 \\
10200553776^2 + 134936000^2 & = & 10201446224^2 \\
102030200553776^2 + 13494936000^2 & = & 102030201446224^2 \\
1020304030200553776^2 + 1349494936000^2 & = & 1020304030201446224^2 \\
& & (4.668)
\end{array}$$

$$\begin{array}{lll}
0563079^2 + 1322000^2 & = & 1436921^2 \\
10200563079^2 + 133522000^2 & = & 10201436921^2 \\
102030200563079^2 + 13353522000^2 & = & 102030201436921^2 \\
1020304030200563079^2 + 1335353522000^2 & = & 1020304030201436921^2 \\
& & (4.661)
\end{array}
\qquad
\begin{array}{lll}
0552439^2 + 1338000^2 & = & 1447561^2 \\
10200552439^2 + 135138000^2 & = & 10201447561^2 \\
102030200552439^2 + 13515138000^2 & = & 102030201447561^2 \\
1020304030200552439^2 + 1351515138000^2 & = & 1020304030201447561^2 \\
& & (4.669)
\end{array}$$

$$\begin{array}{lll}
0561756^2 + 1324000^2 & = & 1438244^2 \\
10200561756^2 + 133724000^2 & = & 10201438244^2 \\
102030200561756^2 + 13373724000^2 & = & 102030201438244^2 \\
1020304030200561756^2 + 1337373724000^2 & = & 1020304030201438244^2 \\
& & (4.662)
\end{array}
\qquad
\begin{array}{lll}
0551100^2 + 1340000^2 & = & 1448900^2 \\
10200551100^2 + 135340000^2 & = & 10201448900^2 \\
102030200551100^2 + 13535340000^2 & = & 102030201448900^2 \\
1020304030200551100^2 + 1353535340000^2 & = & 1020304030201448900^2 \\
& & (4.670)
\end{array}$$

$$\begin{array}{lll}
0560431^2 + 1326000^2 & = & 1439569^2 \\
10200560431^2 + 133926000^2 & = & 10201439569^2 \\
102030200560431^2 + 13393926000^2 & = & 102030201439569^2 \\
1020304030200560431^2 + 1339393926000^2 & = & 1020304030201439569^2 \\
& & (4.663)
\end{array}
\qquad
\begin{array}{lll}
0549759^2 + 1342000^2 & = & 1450241^2 \\
10200549759^2 + 135542000^2 & = & 10201450241^2 \\
102030200549759^2 + 1355542000^2 & = & 102030201450241^2 \\
1020304030200549759^2 + 135555542000^2 & = & 1020304030201450241^2 \\
& & (4.671)
\end{array}$$

$$\begin{array}{lcl}
0548416^2 + 1344000^2 & = & 1451584^2 \\
10200548416^2 + 135744000^2 & = & 10201451584^2 \\
102030200548416^2 + 13575744000^2 & = & 102030201451584^2 \\
1020304030200548416^2 + 1357575744000^2 & = & 1020304030201451584^2 \\
& & (4.672)
\end{array}
\qquad
\begin{array}{lcl}
0537600^2 + 1360000^2 & = & 1462400^2 \\
10200537600^2 + 137360000^2 & = & 10201462400^2 \\
102030200537600^2 + 13737360000^2 & = & 102030201462400^2 \\
1020304030200537600^2 + 1373737360000^2 & = & 1020304030201462400^2 \\
& & (4.680)
\end{array}$$

$$\begin{array}{lcl}
0547071^2 + 1346000^2 & = & 1452929^2 \\
10200547071^2 + 135946000^2 & = & 10201452929^2 \\
102030200547071^2 + 13595946000^2 & = & 102030201452929^2 \\
1020304030200547071^2 + 1359595946000^2 & = & 1020304030201452929^2 \\
& & (4.673)
\end{array}
\qquad
\begin{array}{lcl}
0536239^2 + 1362000^2 & = & 1463761^2 \\
10200536239^2 + 137562000^2 & = & 10201463761^2 \\
102030200536239^2 + 13757562000^2 & = & 102030201463761^2 \\
1020304030200536239^2 + 1375757562000^2 & = & 1020304030201463761^2 \\
& & (4.681)
\end{array}$$

$$\begin{array}{lcl}
0545724^2 + 1348000^2 & = & 1454276^2 \\
10200545724^2 + 136148000^2 & = & 10201454276^2 \\
102030200545724^2 + 13616148000^2 & = & 102030201454276^2 \\
1020304030200545724^2 + 1361616148000^2 & = & 1020304030201454276^2 \\
& & (4.674)
\end{array}
\qquad
\begin{array}{lcl}
0534876^2 + 1364000^2 & = & 1465124^2 \\
10200534876^2 + 137764000^2 & = & 10201465124^2 \\
102030200534876^2 + 13777764000^2 & = & 102030201465124^2 \\
1020304030200534876^2 + 1377777764000^2 & = & 1020304030201465124^2 \\
& & (4.682)
\end{array}$$

$$\begin{array}{lcl}
0544375^2 + 1350000^2 & = & 1455625^2 \\
10200544375^2 + 136350000^2 & = & 10201455625^2 \\
102030200544375^2 + 13636350000^2 & = & 102030201455625^2 \\
1020304030200544375^2 + 1363636350000^2 & = & 1020304030201455625^2 \\
& & (4.675)
\end{array}
\qquad
\begin{array}{lcl}
0533511^2 + 1366000^2 & = & 1466489^2 \\
10200533511^2 + 137966000^2 & = & 10201466489^2 \\
102030200533511^2 + 13797966000^2 & = & 102030201466489^2 \\
1020304030200533511^2 + 1379797966000^2 & = & 1020304030201466489^2 \\
& & (4.683)
\end{array}$$

$$\begin{array}{lcl}
0543024^2 + 1352000^2 & = & 1456976^2 \\
10200543024^2 + 136552000^2 & = & 10201456976^2 \\
102030200543024^2 + 13656552000^2 & = & 102030201456976^2 \\
1020304030200543024^2 + 1365656552000^2 & = & 1020304030201456976^2 \\
& & (4.676)
\end{array}
\qquad
\begin{array}{lcl}
0532144^2 + 1368000^2 & = & 1467856^2 \\
10200532144^2 + 138168000^2 & = & 10201467856^2 \\
102030200532144^2 + 13818168000^2 & = & 102030201467856^2 \\
1020304030200532144^2 + 1381818168000^2 & = & 1020304030201467856^2 \\
& & (4.684)
\end{array}$$

$$\begin{array}{lcl}
0541671^2 + 1354000^2 & = & 1458329^2 \\
10200541671^2 + 136754000^2 & = & 10201458329^2 \\
102030200541671^2 + 13676754000^2 & = & 102030201458329^2 \\
1020304030200541671^2 + 1367676754000^2 & = & 1020304030201458329^2 \\
& & (4.677)
\end{array}
\qquad
\begin{array}{lcl}
0530775^2 + 1370000^2 & = & 1469225^2 \\
10200530775^2 + 138370000^2 & = & 10201469225^2 \\
102030200530775^2 + 13838370000^2 & = & 102030201469225^2 \\
1020304030200530775^2 + 1383838370000^2 & = & 1020304030201469225^2 \\
& & (4.685)
\end{array}$$

$$\begin{array}{lcl}
0540316^2 + 1356000^2 & = & 1459684^2 \\
10200540316^2 + 136956000^2 & = & 10201459684^2 \\
102030200540316^2 + 13696956000^2 & = & 102030201459684^2 \\
1020304030200540316^2 + 1369696956000^2 & = & 1020304030201459684^2 \\
& & (4.678)
\end{array}
\qquad
\begin{array}{lcl}
0529404^2 + 1372000^2 & = & 1470596^2 \\
10200529404^2 + 138572000^2 & = & 10201470596^2 \\
102030200529404^2 + 13858572000^2 & = & 102030201470596^2 \\
1020304030200529404^2 + 1385858572000^2 & = & 1020304030201470596^2 \\
& & (4.686)
\end{array}$$

$$\begin{array}{lcl}
0538959^2 + 1358000^2 & = & 1461041^2 \\
10200538959^2 + 137158000^2 & = & 10201461041^2 \\
102030200538959^2 + 13717158000^2 & = & 102030201461041^2 \\
1020304030200538959^2 + 1371717158000^2 & = & 1020304030201461041^2 \\
& & (4.679)
\end{array}
\qquad
\begin{array}{lcl}
0528031^2 + 1374000^2 & = & 1471969^2 \\
10200528031^2 + 138774000^2 & = & 10201471969^2 \\
102030200528031^2 + 13878774000^2 & = & 102030201471969^2 \\
1020304030200528031^2 + 1387878774000^2 & = & 1020304030201471969^2 \\
& & (4.687)
\end{array}$$

$$\begin{array}{l}
0526656^2 + 1376000^2 = 1473344^2 \\
10200526656^2 + 138976000^2 = 10201473344^2 \\
102030200526656^2 + 13898976000^2 = 102030201473344^2 \\
1020304030200526656^2 + 1389898976000^2 = 1020304030201473344^2 \quad (4.688)
\end{array}
\qquad
\begin{array}{l}
0518364^2 + 1388000^2 = 1481636^2 \\
10200518364^2 + 140188000^2 = 10201481636^2 \\
102030200518364^2 + 14020188000^2 = 102030201481636^2 \\
1020304030200518364^2 + 1402020188000^2 = 1020304030201481636^2 \quad (4.694)
\end{array}$$

$$\begin{array}{l}
0525279^2 + 1378000^2 = 1474721^2 \\
10200525279^2 + 139178000^2 = 10201474721^2 \\
102030200525279^2 + 13919178000^2 = 102030201474721^2 \\
1020304030200525279^2 + 1391919178000^2 = 1020304030201474721^2 \quad (4.689)
\end{array}
\qquad
\begin{array}{l}
0516975^2 + 1390000^2 = 1483025^2 \\
10200516975^2 + 140390000^2 = 10201483025^2 \\
102030200516975^2 + 14040390000^2 = 102030201483025^2 \\
1020304030200516975^2 + 1404040390000^2 = 1020304030201483025^2 \quad (4.695)
\end{array}$$

$$\begin{array}{l}
0523900^2 + 1380000^2 = 1476100^2 \\
10200523900^2 + 139380000^2 = 10201476100^2 \\
102030200523900^2 + 13939380000^2 = 102030201476100^2 \\
1020304030200523900^2 + 1393939380000^2 = 1020304030201476100^2 \quad (4.690)
\end{array}
\qquad
\begin{array}{l}
0515584^2 + 1392000^2 = 1484416^2 \\
10200515584^2 + 140592000^2 = 10201484416^2 \\
102030200515584^2 + 14060592000^2 = 102030201484416^2 \\
1020304030200515584^2 + 1406060592000^2 = 1020304030201484416^2 \quad (4.696)
\end{array}$$

$$\begin{array}{l}
0522519^2 + 1382000^2 = 1477481^2 \\
10200522519^2 + 139582000^2 = 10201477481^2 \\
102030200522519^2 + 13959582000^2 = 102030201477481^2 \\
1020304030200522519^2 + 1395959582000^2 = 1020304030201477481^2 \quad (4.691)
\end{array}
\qquad
\begin{array}{l}
0514191^2 + 1394000^2 = 1485809^2 \\
10200514191^2 + 140794000^2 = 10201485809^2 \\
102030200514191^2 + 14080794000^2 = 102030201485809^2 \\
1020304030200514191^2 + 1408080794000^2 = 1020304030201485809^2 \quad (4.697)
\end{array}$$

$$\begin{array}{l}
0521136^2 + 1384000^2 = 1478864^2 \\
10200521136^2 + 139784000^2 = 10201478864^2 \\
102030200521136^2 + 13979784000^2 = 102030201478864^2 \\
1020304030200521136^2 + 1397979784000^2 = 1020304030201478864^2 \quad (4.692)
\end{array}
\qquad
\begin{array}{l}
0512796^2 + 1396000^2 = 1487204^2 \\
10200512796^2 + 140996000^2 = 10201487204^2 \\
102030200512796^2 + 14100996000^2 = 102030201487204^2 \\
1020304030200512796^2 + 1410100996000^2 = 1020304030201487204^2 \quad (4.698)
\end{array}$$

$$\begin{array}{l}
0519751^2 + 1386000^2 = 1480249^2 \\
10200519751^2 + 139986000^2 = 10201480249^2 \\
102030200519751^2 + 1399986000^2 = 102030201480249^2 \\
1020304030200519751^2 + 13999986000^2 = 1020304030201480249^2 \quad (4.693)
\end{array}
\qquad
\begin{array}{l}
0511399^2 + 1398000^2 = 1488601^2 \\
10200511399^2 + 141198000^2 = 10201488601^2 \\
102030200511399^2 + 14121198000^2 = 102030201488601^2 \\
1020304030200511399^2 + 1412121198000^2 = 1020304030201488601^2 \quad (4.699)
\end{array}$$

#### 4.8 For $n = 700, 701, 701, \dots, 797, 798, 799$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 700, 701, 701, \dots, 797, 798, 799$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$$\begin{array}{l}
0510000^2 + 1400000^2 = 1490000^2 \\
10200510000^2 + 141400000^2 = 10201490000^2 \\
102030200510000^2 + 14141400000^2 = 102030201490000^2 \\
1020304030200510000^2 + 1414141400000^2 = 1020304030201490000^2 \quad (4.700)
\end{array}
\qquad
\begin{array}{l}
0498736^2 + 1416000^2 = 1501264^2 \\
10200498736^2 + 143016000^2 = 10201501264^2 \\
102030200498736^2 + 14303016000^2 = 102030201501264^2 \\
1020304030200498736^2 + 1430303016000^2 = 1020304030201501264^2 \quad (4.708)
\end{array}$$

$$\begin{array}{l}
0508599^2 + 1402000^2 = 1491401^2 \\
10200508599^2 + 141602000^2 = 10201491401^2 \\
102030200508599^2 + 14161602000^2 = 102030201491401^2 \\
1020304030200508599^2 + 1416161602000^2 = 1020304030201491401^2 \quad (4.701)
\end{array}
\qquad
\begin{array}{l}
0497319^2 + 1418000^2 = 1502681^2 \\
10200497319^2 + 143218000^2 = 10201502681^2 \\
102030200497319^2 + 14323218000^2 = 102030201502681^2 \\
1020304030200497319^2 + 1432323218000^2 = 1020304030201502681^2 \quad (4.709)
\end{array}$$

$$\begin{array}{l}
0507196^2 + 1404000^2 = 1492804^2 \\
10200507196^2 + 141804000^2 = 10201492804^2 \\
102030200507196^2 + 14181804000^2 = 102030201492804^2 \\
1020304030200507196^2 + 1418181804000^2 = 1020304030201492804^2 \quad (4.702)
\end{array}
\qquad
\begin{array}{l}
0495900^2 + 1420000^2 = 1504100^2 \\
10200495900^2 + 143420000^2 = 10201504100^2 \\
102030200495900^2 + 14343420000^2 = 102030201504100^2 \\
1020304030200495900^2 + 1434343420000^2 = 1020304030201504100^2 \quad (4.710)
\end{array}$$

$$\begin{array}{l}
0505791^2 + 1406000^2 = 1494209^2 \\
10200505791^2 + 142006000^2 = 10201494209^2 \\
102030200505791^2 + 14202006000^2 = 102030201494209^2 \\
1020304030200505791^2 + 1420202006000^2 = 1020304030201494209^2 \quad (4.703)
\end{array}
\qquad
\begin{array}{l}
0494479^2 + 1422000^2 = 1505521^2 \\
10200494479^2 + 143622000^2 = 10201505521^2 \\
102030200494479^2 + 14363622000^2 = 102030201505521^2 \\
1020304030200494479^2 + 1436363622000^2 = 1020304030201505521^2 \quad (4.711)
\end{array}$$

$$\begin{array}{l}
0504384^2 + 1408000^2 = 1495616^2 \\
10200504384^2 + 142208000^2 = 10201495616^2 \\
102030200504384^2 + 14222208000^2 = 102030201495616^2 \\
1020304030200504384^2 + 1422222208000^2 = 1020304030201495616^2 \quad (4.704)
\end{array}
\qquad
\begin{array}{l}
0493056^2 + 1424000^2 = 1506944^2 \\
10200493056^2 + 143824000^2 = 10201506944^2 \\
102030200493056^2 + 14383824000^2 = 102030201506944^2 \\
1020304030200493056^2 + 1438383824000^2 = 1020304030201506944^2 \quad (4.712)
\end{array}$$

$$\begin{array}{l}
0502975^2 + 1410000^2 = 1497025^2 \\
10200502975^2 + 142410000^2 = 10201497025^2 \\
102030200502975^2 + 14242410000^2 = 102030201497025^2 \\
1020304030200502975^2 + 1424242410000^2 = 1020304030201497025^2 \quad (4.705)
\end{array}
\qquad
\begin{array}{l}
0491631^2 + 1426000^2 = 1508369^2 \\
10200491631^2 + 144026000^2 = 10201508369^2 \\
102030200491631^2 + 14404026000^2 = 102030201508369^2 \\
1020304030200491631^2 + 1440404026000^2 = 1020304030201508369^2 \quad (4.713)
\end{array}$$

$$\begin{array}{l}
0501564^2 + 1412000^2 = 1498436^2 \\
10200501564^2 + 142612000^2 = 10201498436^2 \\
102030200501564^2 + 14262612000^2 = 102030201498436^2 \\
1020304030200501564^2 + 1426262612000^2 = 1020304030201498436^2 \quad (4.706)
\end{array}
\qquad
\begin{array}{l}
0490204^2 + 1428000^2 = 1509796^2 \\
10200490204^2 + 144228000^2 = 10201509796^2 \\
102030200490204^2 + 14424228000^2 = 102030201509796^2 \\
1020304030200490204^2 + 1442424228000^2 = 1020304030201509796^2 \quad (4.714)
\end{array}$$

$$\begin{array}{l}
0500151^2 + 1414000^2 = 1499849^2 \\
10200500151^2 + 142814000^2 = 10201499849^2 \\
102030200500151^2 + 14282814000^2 = 102030201499849^2 \\
1020304030200500151^2 + 1428282814000^2 = 1020304030201499849^2 \quad (4.707)
\end{array}
\qquad
\begin{array}{l}
0488775^2 + 1430000^2 = 1511225^2 \\
10200488775^2 + 144430000^2 = 10201511225^2 \\
102030200488775^2 + 14444430000^2 = 102030201511225^2 \\
1020304030200488775^2 + 1444444430000^2 = 1020304030201511225^2 \quad (4.715)
\end{array}$$

$$\begin{array}{l}
0487344^2 + 1432000^2 = 1512656^2 \\
10200487344^2 + 144632000^2 = 10201512656^2 \\
102030200487344^2 + 14464632000^2 = 102030201512656^2 \\
1020304030200487344^2 + 1446464632000^2 = 1020304030201512656^2 \quad (4.716)
\end{array}
\qquad
\begin{array}{l}
0475824^2 + 1448000^2 = 1524176^2 \\
10200475824^2 + 146248000^2 = 10201524176^2 \\
102030200475824^2 + 14626248000^2 = 102030201524176^2 \\
1020304030200475824^2 + 1462626248000^2 = 1020304030201524176^2 \quad (4.724)
\end{array}$$

$$\begin{array}{l}
0485911^2 + 1434000^2 = 1514089^2 \\
10200485911^2 + 144834000^2 = 10201514089^2 \\
102030200485911^2 + 14484834000^2 = 102030201514089^2 \\
1020304030200485911^2 + 1448484834000^2 = 1020304030201514089^2 \quad (4.717)
\end{array}
\qquad
\begin{array}{l}
0474375^2 + 1450000^2 = 1525625^2 \\
10200474375^2 + 146450000^2 = 10201525625^2 \\
102030200474375^2 + 14646450000^2 = 102030201525625^2 \\
1020304030200474375^2 + 1464646450000^2 = 1020304030201525625^2 \quad (4.725)
\end{array}$$

$$\begin{array}{l}
0484476^2 + 1436000^2 = 1515524^2 \\
10200484476^2 + 145036000^2 = 10201515524^2 \\
102030200484476^2 + 14505036000^2 = 102030201515524^2 \\
1020304030200484476^2 + 1450505036000^2 = 1020304030201515524^2 \quad (4.718)
\end{array}
\qquad
\begin{array}{l}
0472924^2 + 1452000^2 = 1527076^2 \\
10200472924^2 + 146652000^2 = 10201527076^2 \\
102030200472924^2 + 14666652000^2 = 102030201527076^2 \\
1020304030200472924^2 + 1466666652000^2 = 1020304030201527076^2 \quad (4.726)
\end{array}$$

$$\begin{array}{l}
0483039^2 + 1438000^2 = 1516961^2 \\
10200483039^2 + 145238000^2 = 10201516961^2 \\
102030200483039^2 + 14525238000^2 = 102030201516961^2 \\
1020304030200483039^2 + 1452525238000^2 = 1020304030201516961^2 \quad (4.719)
\end{array}
\qquad
\begin{array}{l}
0471471^2 + 1454000^2 = 1528529^2 \\
10200471471^2 + 146854000^2 = 10201528529^2 \\
102030200471471^2 + 14686854000^2 = 102030201528529^2 \\
1020304030200471471^2 + 1468686854000^2 = 1020304030201528529^2 \quad (4.727)
\end{array}$$

$$\begin{array}{l}
0481600^2 + 1440000^2 = 1518400^2 \\
10200481600^2 + 145440000^2 = 10201518400^2 \\
102030200481600^2 + 14545440000^2 = 102030201518400^2 \\
1020304030200481600^2 + 1454545440000^2 = 1020304030201518400^2 \quad (4.720)
\end{array}
\qquad
\begin{array}{l}
0470016^2 + 1456000^2 = 1529984^2 \\
10200470016^2 + 147056000^2 = 10201529984^2 \\
102030200470016^2 + 14707056000^2 = 102030201529984^2 \\
1020304030200470016^2 + 1470707056000^2 = 1020304030201529984^2 \quad (4.728)
\end{array}$$

$$\begin{array}{l}
0480159^2 + 1442000^2 = 1519841^2 \\
10200480159^2 + 145642000^2 = 10201519841^2 \\
102030200480159^2 + 14565642000^2 = 102030201519841^2 \\
1020304030200480159^2 + 1456565642000^2 = 1020304030201519841^2 \quad (4.721)
\end{array}
\qquad
\begin{array}{l}
0468559^2 + 1458000^2 = 1531441^2 \\
10200468559^2 + 147258000^2 = 10201531441^2 \\
102030200468559^2 + 14727258000^2 = 102030201531441^2 \\
1020304030200468559^2 + 1472727258000^2 = 1020304030201531441^2 \quad (4.729)
\end{array}$$

$$\begin{array}{l}
0478716^2 + 1444000^2 = 1521284^2 \\
10200478716^2 + 145844000^2 = 10201521284^2 \\
102030200478716^2 + 14585844000^2 = 102030201521284^2 \\
1020304030200478716^2 + 1458585844000^2 = 1020304030201521284^2 \quad (4.722)
\end{array}
\qquad
\begin{array}{l}
0467100^2 + 1460000^2 = 1532900^2 \\
10200467100^2 + 147460000^2 = 10201532900^2 \\
102030200467100^2 + 14747460000^2 = 102030201532900^2 \\
1020304030200467100^2 + 1474747460000^2 = 1020304030201532900^2 \quad (4.730)
\end{array}$$

$$\begin{array}{l}
0477271^2 + 1446000^2 = 1522729^2 \\
10200477271^2 + 146046000^2 = 10201522729^2 \\
102030200477271^2 + 14606046000^2 = 102030201522729^2 \\
1020304030200477271^2 + 1460606046000^2 = 1020304030201522729^2 \quad (4.723)
\end{array}
\qquad
\begin{array}{l}
0465639^2 + 1462000^2 = 1534361^2 \\
10200465639^2 + 147662000^2 = 10201534361^2 \\
102030200465639^2 + 14767662000^2 = 102030201534361^2 \\
1020304030200465639^2 + 1476767662000^2 = 1020304030201534361^2 \quad (4.731)
\end{array}$$

$$\begin{aligned}
 0464176^2 + 1464000^2 &= 1535824^2 & 0452400^2 + 1480000^2 &= 1547600^2 \\
 10200464176^2 + 147864000^2 &= 10201535824^2 & 10200452400^2 + 149480000^2 &= 10201547600^2 \\
 102030200464176^2 + 14787864000^2 &= 102030201535824^2 & 102030200452400^2 + 14949480000^2 &= 102030201547600^2 \\
 1020304030200464176^2 + 1478787864000^2 &= 1020304030201535824^2 & 1020304030200452400^2 + 1494949480000^2 &= 1020304030201547600^2 \\
 & & & (4.732) & & (4.740)
 \end{aligned}$$

$$\begin{aligned}
 0462711^2 + 1466000^2 &= 1537289^2 & 0450919^2 + 1482000^2 &= 1549081^2 \\
 10200462711^2 + 148066000^2 &= 10201537289^2 & 10200450919^2 + 149682000^2 &= 10201549081^2 \\
 102030200462711^2 + 14808066000^2 &= 102030201537289^2 & 102030200450919^2 + 14969682000^2 &= 102030201549081^2 \\
 1020304030200462711^2 + 1480808066000^2 &= 1020304030201537289^2 & 1020304030200450919^2 + 1496969682000^2 &= 1020304030201549081^2 \\
 & & & (4.733) & & (4.741)
 \end{aligned}$$

$$\begin{aligned}
 0461244^2 + 1468000^2 &= 1538756^2 & 0449436^2 + 1484000^2 &= 1550564^2 \\
 10200461244^2 + 148268000^2 &= 10201538756^2 & 10200449436^2 + 149884000^2 &= 10201550564^2 \\
 102030200461244^2 + 14828268000^2 &= 102030201538756^2 & 102030200449436^2 + 14989884000^2 &= 102030201550564^2 \\
 1020304030200461244^2 + 1482828268000^2 &= 1020304030201538756^2 & 1020304030200449436^2 + 1498989884000^2 &= 1020304030201550564^2 \\
 & & & (4.734) & & (4.742)
 \end{aligned}$$

$$\begin{aligned}
 0459775^2 + 1470000^2 &= 1540225^2 & 0447951^2 + 1486000^2 &= 1552049^2 \\
 10200459775^2 + 148470000^2 &= 10201540225^2 & 10200447951^2 + 150086000^2 &= 10201552049^2 \\
 102030200459775^2 + 14848470000^2 &= 102030201540225^2 & 102030200447951^2 + 15010086000^2 &= 102030201552049^2 \\
 1020304030200459775^2 + 1484848470000^2 &= 1020304030201540225^2 & 1020304030200447951^2 + 1501010086000^2 &= 1020304030201552049^2 \\
 & & & (4.735) & & (4.743)
 \end{aligned}$$

$$\begin{aligned}
 0458304^2 + 1472000^2 &= 1541696^2 & 0446464^2 + 1488000^2 &= 1553536^2 \\
 10200458304^2 + 148672000^2 &= 10201541696^2 & 10200446464^2 + 150288000^2 &= 10201553536^2 \\
 102030200458304^2 + 14868672000^2 &= 102030201541696^2 & 102030200446464^2 + 15030288000^2 &= 102030201553536^2 \\
 1020304030200458304^2 + 1486868672000^2 &= 1020304030201541696^2 & 1020304030200446464^2 + 1503030288000^2 &= 1020304030201553536^2 \\
 & & & (4.736) & & (4.744)
 \end{aligned}$$

$$\begin{aligned}
 0456831^2 + 1474000^2 &= 1543169^2 & 0444975^2 + 1490000^2 &= 1555025^2 \\
 10200456831^2 + 148874000^2 &= 10201543169^2 & 10200444975^2 + 150490000^2 &= 10201555025^2 \\
 102030200456831^2 + 14888874000^2 &= 102030201543169^2 & 102030200444975^2 + 15050490000^2 &= 102030201555025^2 \\
 1020304030200456831^2 + 1488888874000^2 &= 1020304030201543169^2 & 1020304030200444975^2 + 1505050490000^2 &= 1020304030201555025^2 \\
 & & & (4.737) & & (4.745)
 \end{aligned}$$

$$\begin{aligned}
 0455356^2 + 1476000^2 &= 1544644^2 & 0443484^2 + 1492000^2 &= 1556516^2 \\
 10200455356^2 + 149076000^2 &= 10201544644^2 & 10200443484^2 + 150692000^2 &= 10201556516^2 \\
 102030200455356^2 + 14909076000^2 &= 102030201544644^2 & 102030200443484^2 + 15070692000^2 &= 102030201556516^2 \\
 1020304030200455356^2 + 1490909076000^2 &= 1020304030201544644^2 & 1020304030200443484^2 + 1507070692000^2 &= 1020304030201556516^2 \\
 & & & (4.738) & & (4.746)
 \end{aligned}$$

$$\begin{aligned}
 0453879^2 + 1478000^2 &= 1546121^2 & 0441991^2 + 1494000^2 &= 1558009^2 \\
 10200453879^2 + 149278000^2 &= 10201546121^2 & 10200441991^2 + 150894000^2 &= 10201558009^2 \\
 102030200453879^2 + 14929278000^2 &= 102030201546121^2 & 102030200441991^2 + 15090894000^2 &= 102030201558009^2 \\
 1020304030200453879^2 + 1492929278000^2 &= 1020304030201546121^2 & 1020304030200441991^2 + 1509090894000^2 &= 1020304030201558009^2 \\
 & & & (4.739) & & (4.747)
 \end{aligned}$$



$0440496^2 + 1496000^2 = 1559504^2$	$0428464^2 + 1512000^2 = 1571536^2$
$10200440496^2 + 151096000^2 = 10201559504^2$	$10200428464^2 + 152712000^2 = 10201571536^2$
$102030200440496^2 + 15111096000^2 = 102030201559504^2$	$102030200428464^2 + 15272712000^2 = 102030201571536^2$
$1020304030200440496^2 + 1511111096000^2 = 1020304030201559504^2$ (4.748)	$1020304030200428464^2 + 1527272712000^2 = 1020304030201571536^2$ (4.756)
$0438999^2 + 1498000^2 = 1561001^2$	$0426951^2 + 1514000^2 = 1573049^2$
$10200438999^2 + 151298000^2 = 10201561001^2$	$10200426951^2 + 152914000^2 = 10201573049^2$
$102030200438999^2 + 15131298000^2 = 102030201561001^2$	$102030200426951^2 + 15292914000^2 = 102030201573049^2$
$1020304030200438999^2 + 1513131298000^2 = 1020304030201561001^2$ (4.749)	$1020304030200426951^2 + 1529292914000^2 = 1020304030201573049^2$ (4.757)
$0437500^2 + 1500000^2 = 1562500^2$	$0425436^2 + 1516000^2 = 1574564^2$
$10200437500^2 + 151500000^2 = 10201562500^2$	$10200425436^2 + 153116000^2 = 10201574564^2$
$102030200437500^2 + 15151500000^2 = 102030201562500^2$	$102030200425436^2 + 15313116000^2 = 102030201574564^2$
$1020304030200437500^2 + 1515151500000^2 = 1020304030201562500^2$ (4.750)	$1020304030200425436^2 + 1531313116000^2 = 1020304030201574564^2$ (4.758)
$0435999^2 + 1502000^2 = 1564001^2$	$0423919^2 + 1518000^2 = 1576081^2$
$10200435999^2 + 151702000^2 = 10201564001^2$	$10200423919^2 + 153318000^2 = 10201576081^2$
$102030200435999^2 + 15171702000^2 = 102030201564001^2$	$102030200423919^2 + 15333318000^2 = 102030201576081^2$
$1020304030200435999^2 + 1517171702000^2 = 1020304030201564001^2$ (4.751)	$1020304030200423919^2 + 1533333318000^2 = 1020304030201576081^2$ (4.759)
$0434496^2 + 1504000^2 = 1565504^2$	$0422400^2 + 1520000^2 = 1577600^2$
$10200434496^2 + 151904000^2 = 10201565504^2$	$10200422400^2 + 153520000^2 = 10201577600^2$
$102030200434496^2 + 15191904000^2 = 102030201565504^2$	$102030200422400^2 + 15353520000^2 = 102030201577600^2$
$1020304030200434496^2 + 1519191904000^2 = 1020304030201565504^2$ (4.752)	$1020304030200422400^2 + 1535353520000^2 = 1020304030201577600^2$ (4.760)
$0432991^2 + 1506000^2 = 1567009^2$	$0420879^2 + 1522000^2 = 1579121^2$
$10200432991^2 + 152106000^2 = 10201567009^2$	$10200420879^2 + 153722000^2 = 10201579121^2$
$102030200432991^2 + 15212106000^2 = 102030201567009^2$	$102030200420879^2 + 15373722000^2 = 102030201579121^2$
$1020304030200432991^2 + 1521212106000^2 = 1020304030201567009^2$ (4.753)	$1020304030200420879^2 + 1537373722000^2 = 1020304030201579121^2$ (4.761)
$0431484^2 + 1508000^2 = 1568516^2$	$0419356^2 + 1524000^2 = 1580644^2$
$10200431484^2 + 152308000^2 = 10201568516^2$	$10200419356^2 + 153924000^2 = 10201580644^2$
$102030200431484^2 + 15232308000^2 = 102030201568516^2$	$102030200419356^2 + 15393924000^2 = 102030201580644^2$
$1020304030200431484^2 + 1523232308000^2 = 1020304030201568516^2$ (4.754)	$1020304030200419356^2 + 1539393924000^2 = 1020304030201580644^2$ (4.762)
$0429975^2 + 1510000^2 = 1570025^2$	$0417831^2 + 1526000^2 = 1582169^2$
$10200429975^2 + 152510000^2 = 10201570025^2$	$10200417831^2 + 154126000^2 = 10201582169^2$
$102030200429975^2 + 15252510000^2 = 102030201570025^2$	$102030200417831^2 + 15414126000^2 = 102030201582169^2$
$1020304030200429975^2 + 1525252510000^2 = 1020304030201570025^2$ (4.755)	$1020304030200417831^2 + 1541414126000^2 = 1020304030201582169^2$ (4.763)

$0416304^2 + 1528000^2 = 1583696^2$	$0404016^2 + 1544000^2 = 1595984^2$
$10200416304^2 + 154328000^2 = 10201583696^2$	$10200404016^2 + 155944000^2 = 10201595984^2$
$102030200416304^2 + 15434328000^2 = 102030201583696^2$	$102030200404016^2 + 15595944000^2 = 102030201595984^2$
$1020304030200416304^2 + 1543434328000^2 = 1020304030201583696^2$ (4.764)	$1020304030200404016^2 + 1559595944000^2 = 1020304030201595984^2$ (4.772)
$0414775^2 + 1530000^2 = 1585225^2$	$0402471^2 + 1546000^2 = 1597529^2$
$10200414775^2 + 154530000^2 = 10201585225^2$	$10200402471^2 + 156146000^2 = 10201597529^2$
$102030200414775^2 + 15454530000^2 = 102030201585225^2$	$102030200402471^2 + 15616146000^2 = 102030201597529^2$
$1020304030200414775^2 + 1545454530000^2 = 1020304030201585225^2$ (4.765)	$1020304030200402471^2 + 1561616146000^2 = 1020304030201597529^2$ (4.773)
$0413244^2 + 1532000^2 = 1586756^2$	$0400924^2 + 1548000^2 = 1599076^2$
$10200413244^2 + 154732000^2 = 10201586756^2$	$10200400924^2 + 156348000^2 = 10201599076^2$
$102030200413244^2 + 15474732000^2 = 102030201586756^2$	$102030200400924^2 + 15636348000^2 = 102030201599076^2$
$1020304030200413244^2 + 1547474732000^2 = 1020304030201586756^2$ (4.766)	$1020304030200400924^2 + 1563636348000^2 = 1020304030201599076^2$ (4.774)
$0411711^2 + 1534000^2 = 1588289^2$	$0399375^2 + 1550000^2 = 1600625^2$
$10200411711^2 + 154934000^2 = 10201588289^2$	$10200399375^2 + 156550000^2 = 10201600625^2$
$102030200411711^2 + 15494934000^2 = 102030201588289^2$	$102030200399375^2 + 15656550000^2 = 102030201600625^2$
$1020304030200411711^2 + 1549494934000^2 = 1020304030201588289^2$ (4.767)	$1020304030200399375^2 + 1565656550000^2 = 1020304030201600625^2$ (4.775)
$0410176^2 + 1536000^2 = 1589824^2$	$0397824^2 + 1552000^2 = 1602176^2$
$10200410176^2 + 155136000^2 = 10201589824^2$	$10200397824^2 + 156752000^2 = 10201602176^2$
$102030200410176^2 + 15515136000^2 = 102030201589824^2$	$102030200397824^2 + 15676752000^2 = 102030201602176^2$
$1020304030200410176^2 + 1551515136000^2 = 1020304030201589824^2$ (4.768)	$1020304030200397824^2 + 1567676752000^2 = 1020304030201602176^2$ (4.776)
$0408639^2 + 1538000^2 = 1591361^2$	$0396271^2 + 1554000^2 = 1603729^2$
$10200408639^2 + 155338000^2 = 10201591361^2$	$10200396271^2 + 156954000^2 = 10201603729^2$
$102030200408639^2 + 15535338000^2 = 102030201591361^2$	$102030200396271^2 + 15696954000^2 = 102030201603729^2$
$1020304030200408639^2 + 1553535338000^2 = 1020304030201591361^2$ (4.769)	$1020304030200396271^2 + 1569696954000^2 = 1020304030201603729^2$ (4.777)
$0407100^2 + 1540000^2 = 1592900^2$	$0394716^2 + 1556000^2 = 1605284^2$
$10200407100^2 + 155540000^2 = 10201592900^2$	$10200394716^2 + 157156000^2 = 10201605284^2$
$102030200407100^2 + 15555540000^2 = 102030201592900^2$	$102030200394716^2 + 15717156000^2 = 102030201605284^2$
$1020304030200407100^2 + 1555555540000^2 = 1020304030201592900^2$ (4.770)	$1020304030200394716^2 + 1571717156000^2 = 1020304030201605284^2$ (4.778)
$0405559^2 + 1542000^2 = 1594441^2$	$0393159^2 + 1558000^2 = 1606841^2$
$10200405559^2 + 155742000^2 = 10201594441^2$	$10200393159^2 + 157358000^2 = 10201606841^2$
$102030200405559^2 + 15575742000^2 = 102030201594441^2$	$102030200393159^2 + 15737358000^2 = 102030201606841^2$
$1020304030200405559^2 + 1557575742000^2 = 1020304030201594441^2$ (4.771)	$1020304030200393159^2 + 1573737358000^2 = 1020304030201606841^2$ (4.779)

$$\begin{aligned}
0391600^2 + 1560000^2 &= \mathbf{1\ 608400^2} & 0379056^2 + 1576000^2 &= \mathbf{1\ 620944^2} \\
\mathbf{1020\ 0391600^2 + 157560000^2} &= \mathbf{10201\ 608400^2} & \mathbf{1020\ 0379056^2 + 159176000^2} &= \mathbf{10201\ 620944^2} \\
\mathbf{10203020\ 0391600^2 + 15757560000^2} &= \mathbf{102030201\ 608400^2} & \mathbf{10203020\ 0379056^2 + 15919176000^2} &= \mathbf{102030201\ 620944^2} \\
\mathbf{102030403020\ 0391600^2 + 1575757560000^2} &= \mathbf{1020304030201\ 608400^2} & \mathbf{102030403020\ 0379056^2 + 1591919176000^2} &= \mathbf{1020304030201\ 620944^2} \\
&& & (4.780) & & (4.788)
\end{aligned}$$

$$\begin{aligned}
0390039^2 + 1562000^2 &= \mathbf{1\ 609961^2} & 0377479^2 + 1578000^2 &= \mathbf{1\ 622521^2} \\
\mathbf{1020\ 0390039^2 + 157762000^2} &= \mathbf{10201\ 609961^2} & \mathbf{1020\ 0377479^2 + 159378000^2} &= \mathbf{10201\ 622521^2} \\
\mathbf{10203020\ 0390039^2 + 15777762000^2} &= \mathbf{102030201\ 609961^2} & \mathbf{10203020\ 0377479^2 + 15939378000^2} &= \mathbf{102030201\ 622521^2} \\
\mathbf{102030403020\ 0390039^2 + 1577777762000^2} &= \mathbf{1020304030201\ 609961^2} & \mathbf{102030403020\ 0377479^2 + 1593939378000^2} &= \mathbf{1020304030201\ 622521^2} \\
&& & (4.781) & & (4.789)
\end{aligned}$$

$$\begin{aligned}
0388476^2 + 1564000^2 &= \mathbf{1\ 611524^2} & 0375900^2 + 1580000^2 &= \mathbf{1\ 624100^2} \\
\mathbf{1020\ 0388476^2 + 157964000^2} &= \mathbf{10201\ 611524^2} & \mathbf{1020\ 0375900^2 + 159580000^2} &= \mathbf{10201\ 624100^2} \\
\mathbf{10203020\ 0388476^2 + 15797964000^2} &= \mathbf{102030201\ 611524^2} & \mathbf{10203020\ 0375900^2 + 15959580000^2} &= \mathbf{102030201\ 624100^2} \\
\mathbf{102030403020\ 0388476^2 + 1579797964000^2} &= \mathbf{1020304030201\ 611524^2} & \mathbf{102030403020\ 0375900^2 + 1595959580000^2} &= \mathbf{1020304030201\ 624100^2} \\
&& & (4.782) & & (4.790)
\end{aligned}$$

$$\begin{aligned}
0386911^2 + 1566000^2 &= \mathbf{1\ 613089^2} & 0374319^2 + 1582000^2 &= \mathbf{1\ 625681^2} \\
\mathbf{1020\ 0386911^2 + 158166000^2} &= \mathbf{10201\ 613089^2} & \mathbf{1020\ 0374319^2 + 159782000^2} &= \mathbf{10201\ 625681^2} \\
\mathbf{10203020\ 0386911^2 + 15818166000^2} &= \mathbf{102030201\ 613089^2} & \mathbf{10203020\ 0374319^2 + 15979782000^2} &= \mathbf{102030201\ 625681^2} \\
\mathbf{102030403020\ 0386911^2 + 1581818166000^2} &= \mathbf{1020304030201\ 613089^2} & \mathbf{102030403020\ 0374319^2 + 1597979782000^2} &= \mathbf{1020304030201\ 625681^2} \\
&& & (4.783) & & (4.791)
\end{aligned}$$

$$\begin{aligned}
0385344^2 + 1568000^2 &= \mathbf{1\ 614656^2} & 0372736^2 + 1584000^2 &= \mathbf{1\ 627264^2} \\
\mathbf{1020\ 0385344^2 + 158368000^2} &= \mathbf{10201\ 614656^2} & \mathbf{1020\ 0372736^2 + 159984000^2} &= \mathbf{10201\ 627264^2} \\
\mathbf{10203020\ 0385344^2 + 15838368000^2} &= \mathbf{102030201\ 614656^2} & \mathbf{10203020\ 0372736^2 + 15999984000^2} &= \mathbf{102030201\ 627264^2} \\
\mathbf{102030403020\ 0385344^2 + 1583838368000^2} &= \mathbf{1020304030201\ 614656^2} & \mathbf{102030403020\ 0372736^2 + 1599999984000^2} &= \mathbf{1020304030201\ 627264^2} \\
&& & (4.784) & & (4.792)
\end{aligned}$$

$$\begin{aligned}
0383775^2 + 1570000^2 &= \mathbf{1\ 616225^2} & 0371151^2 + 1586000^2 &= \mathbf{1\ 628849^2} \\
\mathbf{1020\ 0383775^2 + 158570000^2} &= \mathbf{10201\ 616225^2} & \mathbf{1020\ 0371151^2 + 160186000^2} &= \mathbf{10201\ 628849^2} \\
\mathbf{10203020\ 0383775^2 + 15858570000^2} &= \mathbf{102030201\ 616225^2} & \mathbf{10203020\ 0371151^2 + 16020186000^2} &= \mathbf{102030201\ 628849^2} \\
\mathbf{102030403020\ 0383775^2 + 1585858570000^2} &= \mathbf{1020304030201\ 616225^2} & \mathbf{102030403020\ 0371151^2 + 1602020186000^2} &= \mathbf{1020304030201\ 628849^2} \\
&& & (4.785) & & (4.793)
\end{aligned}$$

$$\begin{aligned}
0382204^2 + 1572000^2 &= \mathbf{1\ 617796^2} & 0369564^2 + 1588000^2 &= \mathbf{1\ 630436^2} \\
\mathbf{1020\ 0382204^2 + 158772000^2} &= \mathbf{10201\ 617796^2} & \mathbf{1020\ 0369564^2 + 160388000^2} &= \mathbf{10201\ 630436^2} \\
\mathbf{10203020\ 0382204^2 + 15878772000^2} &= \mathbf{102030201\ 617796^2} & \mathbf{10203020\ 0369564^2 + 16040388000^2} &= \mathbf{102030201\ 630436^2} \\
\mathbf{102030403020\ 0382204^2 + 1587878772000^2} &= \mathbf{1020304030201\ 617796^2} & \mathbf{102030403020\ 0369564^2 + 1604040388000^2} &= \mathbf{1020304030201\ 630436^2} \\
&& & (4.786) & & (4.794)
\end{aligned}$$

$$\begin{aligned}
0380631^2 + 1574000^2 &= \mathbf{1\ 619369^2} & 0367975^2 + 1590000^2 &= \mathbf{1\ 632025^2} \\
\mathbf{1020\ 0380631^2 + 158974000^2} &= \mathbf{10201\ 619369^2} & \mathbf{1020\ 0367975^2 + 160590000^2} &= \mathbf{10201\ 632025^2} \\
\mathbf{10203020\ 0380631^2 + 15898974000^2} &= \mathbf{102030201\ 619369^2} & \mathbf{10203020\ 0367975^2 + 16060590000^2} &= \mathbf{102030201\ 632025^2} \\
\mathbf{102030403020\ 0380631^2 + 1589898974000^2} &= \mathbf{1020304030201\ 619369^2} & \mathbf{102030403020\ 0367975^2 + 1606060590000^2} &= \mathbf{1020304030201\ 632025^2} \\
&& & (4.787) & & (4.795)
\end{aligned}$$

$$\begin{array}{lcl}
 0366384^2 + 1592000^2 & = & \mathbf{1\ 633616^2} \\
 \mathbf{1020\ 0366384^2 + 160792000^2} & = & \mathbf{10201\ 633616^2} \\
 \mathbf{10203020\ 0366384^2 + 16080792000^2} & = & \mathbf{102030201\ 633616^2} \\
 \mathbf{102030403020\ 0366384^2 + 1608080792000^2} & = & \mathbf{1020304030201\ 633616^2} \\
 & & (4.796)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0363196^2 + 1596000^2 & = & \mathbf{1\ 636804^2} \\
 \mathbf{1020\ 0363196^2 + 161196000^2} & = & \mathbf{10201\ 636804^2} \\
 \mathbf{10203020\ 0363196^2 + 16121196000^2} & = & \mathbf{102030201\ 636804^2} \\
 \mathbf{102030403020\ 0363196^2 + 1612121196000^2} & = & \mathbf{1020304030201\ 636804^2} \\
 & & (4.798)
 \end{array}$$

$$\begin{array}{lcl}
 0364791^2 + 1594000^2 & = & \mathbf{1\ 635209^2} \\
 \mathbf{1020\ 0364791^2 + 160994000^2} & = & \mathbf{10201\ 635209^2} \\
 \mathbf{10203020\ 0364791^2 + 16100994000^2} & = & \mathbf{102030201\ 635209^2} \\
 \mathbf{102030403020\ 0364791^2 + 1610100994000^2} & = & \mathbf{1020304030201\ 635209^2} \\
 & & (4.797)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0361599^2 + 1598000^2 & = & \mathbf{1\ 638401^2} \\
 \mathbf{1020\ 0361599^2 + 161398000^2} & = & \mathbf{10201\ 638401^2} \\
 \mathbf{10203020\ 0361599^2 + 16141398000^2} & = & \mathbf{102030201\ 638401^2} \\
 \mathbf{102030403020\ 0361599^2 + 1614141398000^2} & = & \mathbf{1020304030201\ 638401^2} \\
 & & (4.799)
 \end{array}$$

#### 4.9 For $n = 800, 801, 801, \dots, 897, 898, 899$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 800, 801, 801, \dots, 897, 898, 899$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$$\begin{array}{lcl}
 0360000^2 + 1600000^2 & = & \mathbf{1\ 640000^2} \\
 \mathbf{1020\ 0360000^2 + 161600000^2} & = & \mathbf{10201\ 640000^2} \\
 \mathbf{10203020\ 0360000^2 + 16161600000^2} & = & \mathbf{102030201\ 640000^2} \\
 \mathbf{102030403020\ 0360000^2 + 1616161600000^2} & = & \mathbf{1020304030201\ 640000^2} \\
 & & (4.800)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0353584^2 + 1608000^2 & = & \mathbf{1\ 646416^2} \\
 \mathbf{1020\ 0353584^2 + 162408000^2} & = & \mathbf{10201\ 646416^2} \\
 \mathbf{10203020\ 0353584^2 + 16242408000^2} & = & \mathbf{102030201\ 646416^2} \\
 \mathbf{102030403020\ 0353584^2 + 1624242408000^2} & = & \mathbf{1020304030201\ 646416^2} \\
 & & (4.804)
 \end{array}$$

$$\begin{array}{lcl}
 0358399^2 + 1602000^2 & = & \mathbf{1\ 641601^2} \\
 \mathbf{1020\ 0358399^2 + 161802000^2} & = & \mathbf{10201\ 641601^2} \\
 \mathbf{10203020\ 0358399^2 + 16181802000^2} & = & \mathbf{102030201\ 641601^2} \\
 \mathbf{102030403020\ 0358399^2 + 1618181802000^2} & = & \mathbf{1020304030201\ 641601^2} \\
 & & (4.801)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0351975^2 + 1610000^2 & = & \mathbf{1\ 648025^2} \\
 \mathbf{1020\ 0351975^2 + 162610000^2} & = & \mathbf{10201\ 648025^2} \\
 \mathbf{10203020\ 0351975^2 + 16262610000^2} & = & \mathbf{102030201\ 648025^2} \\
 \mathbf{102030403020\ 0351975^2 + 1626262610000^2} & = & \mathbf{1020304030201\ 648025^2} \\
 & & (4.805)
 \end{array}$$

$$\begin{array}{lcl}
 0356796^2 + 1604000^2 & = & \mathbf{1\ 643204^2} \\
 \mathbf{1020\ 0356796^2 + 162004000^2} & = & \mathbf{10201\ 643204^2} \\
 \mathbf{10203020\ 0356796^2 + 16202004000^2} & = & \mathbf{102030201\ 643204^2} \\
 \mathbf{102030403020\ 0356796^2 + 1620202004000^2} & = & \mathbf{1020304030201\ 643204^2} \\
 & & (4.802)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0350364^2 + 1612000^2 & = & \mathbf{1\ 649636^2} \\
 \mathbf{1020\ 0350364^2 + 162812000^2} & = & \mathbf{10201\ 649636^2} \\
 \mathbf{10203020\ 0350364^2 + 16282812000^2} & = & \mathbf{102030201\ 649636^2} \\
 \mathbf{102030403020\ 0350364^2 + 1628282812000^2} & = & \mathbf{1020304030201\ 649636^2} \\
 & & (4.806)
 \end{array}$$

$$\begin{array}{lcl}
 0355191^2 + 1606000^2 & = & \mathbf{1\ 644809^2} \\
 \mathbf{1020\ 0355191^2 + 162206000^2} & = & \mathbf{10201\ 644809^2} \\
 \mathbf{10203020\ 0355191^2 + 16222206000^2} & = & \mathbf{102030201\ 644809^2} \\
 \mathbf{102030403020\ 0355191^2 + 1622222206000^2} & = & \mathbf{1020304030201\ 644809^2} \\
 & & (4.803)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0348751^2 + 1614000^2 & = & \mathbf{1\ 651249^2} \\
 \mathbf{1020\ 0348751^2 + 163014000^2} & = & \mathbf{10201\ 651249^2} \\
 \mathbf{10203020\ 0348751^2 + 16303014000^2} & = & \mathbf{102030201\ 651249^2} \\
 \mathbf{102030403020\ 0348751^2 + 1630303014000^2} & = & \mathbf{1020304030201\ 651249^2} \\
 & & (4.807)
 \end{array}$$

$$\begin{array}{lll}
0347136^2 + 1616000^2 & = & \mathbf{1\ 652864^2} \\
\mathbf{1020\ 0347136^2 + 163216000^2} & = & \mathbf{10201\ 652864^2} \\
\mathbf{10203020\ 0347136^2 + 16323216000^2} & = & \mathbf{102030201\ 652864^2} \\
\mathbf{102030403020\ 0347136^2 + 1632323216000^2} & = & \mathbf{1020304030201\ 652864^2} \\
& & (4.808)
\end{array}
\qquad
\begin{array}{lll}
0334144^2 + 1632000^2 & = & \mathbf{1\ 665856^2} \\
\mathbf{1020\ 0334144^2 + 164832000^2} & = & \mathbf{10201\ 665856^2} \\
\mathbf{10203020\ 0334144^2 + 16484832000^2} & = & \mathbf{102030201\ 665856^2} \\
\mathbf{102030403020\ 0334144^2 + 1648484832000^2} & = & \mathbf{1020304030201\ 665856^2} \\
& & (4.816)
\end{array}$$

$$\begin{array}{lll}
0345519^2 + 1618000^2 & = & \mathbf{1\ 654481^2} \\
\mathbf{1020\ 0345519^2 + 163418000^2} & = & \mathbf{10201\ 654481^2} \\
\mathbf{10203020\ 0345519^2 + 16343418000^2} & = & \mathbf{102030201\ 654481^2} \\
\mathbf{102030403020\ 0345519^2 + 1634343418000^2} & = & \mathbf{1020304030201\ 654481^2} \\
& & (4.809)
\end{array}
\qquad
\begin{array}{lll}
0332511^2 + 1634000^2 & = & \mathbf{1\ 667489^2} \\
\mathbf{1020\ 0332511^2 + 165034000^2} & = & \mathbf{10201\ 667489^2} \\
\mathbf{10203020\ 0332511^2 + 16505034000^2} & = & \mathbf{102030201\ 667489^2} \\
\mathbf{102030403020\ 0332511^2 + 1650505034000^2} & = & \mathbf{1020304030201\ 667489^2} \\
& & (4.817)
\end{array}$$

$$\begin{array}{lll}
0343900^2 + 1620000^2 & = & \mathbf{1\ 656100^2} \\
\mathbf{1020\ 0343900^2 + 163620000^2} & = & \mathbf{10201\ 656100^2} \\
\mathbf{10203020\ 0343900^2 + 16363620000^2} & = & \mathbf{102030201\ 656100^2} \\
\mathbf{102030403020\ 0343900^2 + 1636363620000^2} & = & \mathbf{1020304030201\ 656100^2} \\
& & (4.810)
\end{array}
\qquad
\begin{array}{lll}
0330876^2 + 1636000^2 & = & \mathbf{1\ 669124^2} \\
\mathbf{1020\ 0330876^2 + 165236000^2} & = & \mathbf{10201\ 669124^2} \\
\mathbf{10203020\ 0330876^2 + 16525236000^2} & = & \mathbf{102030201\ 669124^2} \\
\mathbf{102030403020\ 0330876^2 + 1652525236000^2} & = & \mathbf{1020304030201\ 669124^2} \\
& & (4.818)
\end{array}$$

$$\begin{array}{lll}
0342279^2 + 1622000^2 & = & \mathbf{1\ 657721^2} \\
\mathbf{1020\ 0342279^2 + 163822000^2} & = & \mathbf{10201\ 657721^2} \\
\mathbf{10203020\ 0342279^2 + 16383822000^2} & = & \mathbf{102030201\ 657721^2} \\
\mathbf{102030403020\ 0342279^2 + 1638383822000^2} & = & \mathbf{1020304030201\ 657721^2} \\
& & (4.811)
\end{array}
\qquad
\begin{array}{lll}
0329239^2 + 1638000^2 & = & \mathbf{1\ 670761^2} \\
\mathbf{1020\ 0329239^2 + 165438000^2} & = & \mathbf{10201\ 670761^2} \\
\mathbf{10203020\ 0329239^2 + 16545438000^2} & = & \mathbf{102030201\ 670761^2} \\
\mathbf{102030403020\ 0329239^2 + 1654545438000^2} & = & \mathbf{1020304030201\ 670761^2} \\
& & (4.819)
\end{array}$$

$$\begin{array}{lll}
0340656^2 + 1624000^2 & = & \mathbf{1\ 659344^2} \\
\mathbf{1020\ 0340656^2 + 164024000^2} & = & \mathbf{10201\ 659344^2} \\
\mathbf{10203020\ 0340656^2 + 16404024000^2} & = & \mathbf{102030201\ 659344^2} \\
\mathbf{102030403020\ 0340656^2 + 1640404024000^2} & = & \mathbf{1020304030201\ 659344^2} \\
& & (4.812)
\end{array}
\qquad
\begin{array}{lll}
0327600^2 + 1640000^2 & = & \mathbf{1\ 672400^2} \\
\mathbf{1020\ 0327600^2 + 165640000^2} & = & \mathbf{10201\ 672400^2} \\
\mathbf{10203020\ 0327600^2 + 16565640000^2} & = & \mathbf{102030201\ 672400^2} \\
\mathbf{102030403020\ 0327600^2 + 1656565640000^2} & = & \mathbf{1020304030201\ 672400^2} \\
& & (4.820)
\end{array}$$

$$\begin{array}{lll}
0339031^2 + 1626000^2 & = & \mathbf{1\ 660969^2} \\
\mathbf{1020\ 0339031^2 + 164226000^2} & = & \mathbf{10201\ 660969^2} \\
\mathbf{10203020\ 0339031^2 + 16424226000^2} & = & \mathbf{102030201\ 660969^2} \\
\mathbf{102030403020\ 0339031^2 + 1642424226000^2} & = & \mathbf{1020304030201\ 660969^2} \\
& & (4.813)
\end{array}
\qquad
\begin{array}{lll}
0325959^2 + 1642000^2 & = & \mathbf{1\ 674041^2} \\
\mathbf{1020\ 0325959^2 + 165842000^2} & = & \mathbf{10201\ 674041^2} \\
\mathbf{10203020\ 0325959^2 + 16585842000^2} & = & \mathbf{102030201\ 674041^2} \\
\mathbf{102030403020\ 0325959^2 + 1658585842000^2} & = & \mathbf{1020304030201\ 674041^2} \\
& & (4.821)
\end{array}$$

$$\begin{array}{lll}
0337404^2 + 1628000^2 & = & \mathbf{1\ 662596^2} \\
\mathbf{1020\ 0337404^2 + 164428000^2} & = & \mathbf{10201\ 662596^2} \\
\mathbf{10203020\ 0337404^2 + 16444428000^2} & = & \mathbf{102030201\ 662596^2} \\
\mathbf{102030403020\ 0337404^2 + 1644444428000^2} & = & \mathbf{1020304030201\ 662596^2} \\
& & (4.814)
\end{array}
\qquad
\begin{array}{lll}
0324316^2 + 1644000^2 & = & \mathbf{1\ 675684^2} \\
\mathbf{1020\ 0324316^2 + 166044000^2} & = & \mathbf{10201\ 675684^2} \\
\mathbf{10203020\ 0324316^2 + 16606044000^2} & = & \mathbf{102030201\ 675684^2} \\
\mathbf{102030403020\ 0324316^2 + 1660606044000^2} & = & \mathbf{1020304030201\ 675684^2} \\
& & (4.822)
\end{array}$$

$$\begin{array}{lll}
0335775^2 + 1630000^2 & = & \mathbf{1\ 664225^2} \\
\mathbf{1020\ 0335775^2 + 164630000^2} & = & \mathbf{10201\ 664225^2} \\
\mathbf{10203020\ 0335775^2 + 16464630000^2} & = & \mathbf{102030201\ 664225^2} \\
\mathbf{102030403020\ 0335775^2 + 1646464630000^2} & = & \mathbf{1020304030201\ 664225^2} \\
& & (4.815)
\end{array}
\qquad
\begin{array}{lll}
0322671^2 + 1646000^2 & = & \mathbf{1\ 677329^2} \\
\mathbf{1020\ 0322671^2 + 166246000^2} & = & \mathbf{10201\ 677329^2} \\
\mathbf{10203020\ 0322671^2 + 16626246000^2} & = & \mathbf{102030201\ 677329^2} \\
\mathbf{102030403020\ 0322671^2 + 1662626246000^2} & = & \mathbf{1020304030201\ 677329^2} \\
& & (4.823)
\end{array}$$

$0321024^2 + 1648000^2 = 1678976^2$	$0307776^2 + 1664000^2 = 1692224^2$
$10200321024^2 + 166448000^2 = 10201678976^2$	$10200307776^2 + 168064000^2 = 10201692224^2$
$102030200321024^2 + 16646448000^2 = 102030201678976^2$	$102030200307776^2 + 16808064000^2 = 102030201692224^2$
$1020304030200321024^2 + 1664646448000^2 = 1020304030201678976^2$ (4.824)	$1020304030200307776^2 + 1680808064000^2 = 1020304030201692224^2$ (4.832)
$0319375^2 + 1650000^2 = 1680625^2$	$0306111^2 + 1666000^2 = 1693889^2$
$10200319375^2 + 166650000^2 = 10201680625^2$	$10200306111^2 + 168266000^2 = 10201693889^2$
$102030200319375^2 + 16666650000^2 = 102030201680625^2$	$102030200306111^2 + 16828266000^2 = 102030201693889^2$
$1020304030200319375^2 + 1666666650000^2 = 1020304030201680625^2$ (4.825)	$1020304030200306111^2 + 1682828266000^2 = 1020304030201693889^2$ (4.833)
$0317724^2 + 1652000^2 = 1682276^2$	$0304444^2 + 1668000^2 = 1695556^2$
$10200317724^2 + 166852000^2 = 10201682276^2$	$10200304444^2 + 168468000^2 = 10201695556^2$
$102030200317724^2 + 16686852000^2 = 102030201682276^2$	$102030200304444^2 + 16848468000^2 = 102030201695556^2$
$1020304030200317724^2 + 1668686852000^2 = 1020304030201682276^2$ (4.826)	$1020304030200304444^2 + 1684848468000^2 = 1020304030201695556^2$ (4.834)
$0316071^2 + 1654000^2 = 1683929^2$	$0302775^2 + 1670000^2 = 1697225^2$
$10200316071^2 + 167054000^2 = 10201683929^2$	$10200302775^2 + 168670000^2 = 10201697225^2$
$102030200316071^2 + 16707054000^2 = 102030201683929^2$	$102030200302775^2 + 16868670000^2 = 102030201697225^2$
$1020304030200316071^2 + 1670707054000^2 = 1020304030201683929^2$ (4.827)	$1020304030200302775^2 + 1686868670000^2 = 1020304030201697225^2$ (4.835)
$0314416^2 + 1656000^2 = 1685584^2$	$0301104^2 + 1672000^2 = 1698896^2$
$10200314416^2 + 167256000^2 = 10201685584^2$	$10200301104^2 + 168872000^2 = 10201698896^2$
$102030200314416^2 + 16727256000^2 = 102030201685584^2$	$102030200301104^2 + 16888872000^2 = 102030201698896^2$
$1020304030200314416^2 + 1672727256000^2 = 1020304030201685584^2$ (4.828)	$1020304030200301104^2 + 1688888872000^2 = 1020304030201698896^2$ (4.836)
$0312759^2 + 1658000^2 = 1687241^2$	$0299431^2 + 1674000^2 = 1700569^2$
$10200312759^2 + 167458000^2 = 10201687241^2$	$10200299431^2 + 169074000^2 = 10201700569^2$
$102030200312759^2 + 16747458000^2 = 102030201687241^2$	$102030200299431^2 + 16909074000^2 = 102030201700569^2$
$1020304030200312759^2 + 1674747458000^2 = 1020304030201687241^2$ (4.829)	$1020304030200299431^2 + 1690909074000^2 = 1020304030201700569^2$ (4.837)
$0311100^2 + 1660000^2 = 1688900^2$	$0297756^2 + 1676000^2 = 1702244^2$
$10200311100^2 + 167660000^2 = 10201688900^2$	$10200297756^2 + 169276000^2 = 10201702244^2$
$102030200311100^2 + 16767660000^2 = 102030201688900^2$	$102030200297756^2 + 16929276000^2 = 102030201702244^2$
$1020304030200311100^2 + 1676767660000^2 = 1020304030201688900^2$ (4.830)	$1020304030200297756^2 + 1692929276000^2 = 1020304030201702244^2$ (4.838)
$0309439^2 + 1662000^2 = 1690561^2$	$0296079^2 + 1678000^2 = 1703921^2$
$10200309439^2 + 167862000^2 = 10201690561^2$	$10200296079^2 + 169478000^2 = 10201703921^2$
$102030200309439^2 + 16787862000^2 = 102030201690561^2$	$102030200296079^2 + 16949478000^2 = 102030201703921^2$
$1020304030200309439^2 + 1678787862000^2 = 1020304030201690561^2$ (4.831)	$1020304030200296079^2 + 1694949478000^2 = 1020304030201703921^2$ (4.839)

$$\begin{aligned}
0294400^2 + 1680000^2 &= 1705600^2 & 0280896^2 + 1696000^2 &= 1719104^2 \\
10200294400^2 + 169680000^2 &= 10201705600^2 & 10200280896^2 + 171296000^2 &= 10201719104^2 \\
102030200294400^2 + 16969680000^2 &= 102030201705600^2 & 102030200280896^2 + 17131296000^2 &= 102030201719104^2 \\
1020304030200294400^2 + 1696969680000^2 &= 1020304030201705600^2 & 1020304030200280896^2 + 1713131296000^2 &= 1020304030201719104^2 \\
&& & (4.840) & & (4.848)
\end{aligned}$$

$$\begin{aligned}
0292719^2 + 1682000^2 &= 1707281^2 & 0279199^2 + 1698000^2 &= 1720801^2 \\
10200292719^2 + 169882000^2 &= 10201707281^2 & 10200279199^2 + 171498000^2 &= 10201720801^2 \\
102030200292719^2 + 16989882000^2 &= 102030201707281^2 & 102030200279199^2 + 17151498000^2 &= 102030201720801^2 \\
1020304030200292719^2 + 1698989882000^2 &= 1020304030201707281^2 & 1020304030200279199^2 + 1715151498000^2 &= 1020304030201720801^2 \\
&& & (4.841) & & (4.849)
\end{aligned}$$

$$\begin{aligned}
0291036^2 + 1684000^2 &= 1708964^2 & 0277500^2 + 1700000^2 &= 1722500^2 \\
10200291036^2 + 170084000^2 &= 10201708964^2 & 10200277500^2 + 171700000^2 &= 10201722500^2 \\
102030200291036^2 + 17010084000^2 &= 102030201708964^2 & 102030200277500^2 + 17171700000^2 &= 102030201722500^2 \\
1020304030200291036^2 + 1701010084000^2 &= 1020304030201708964^2 & 1020304030200277500^2 + 1717171700000^2 &= 1020304030201722500^2 \\
&& & (4.842) & & (4.850)
\end{aligned}$$

$$\begin{aligned}
0289351^2 + 1686000^2 &= 1710649^2 & 0275799^2 + 1702000^2 &= 1724201^2 \\
10200289351^2 + 170286000^2 &= 10201710649^2 & 10200275799^2 + 171902000^2 &= 10201724201^2 \\
102030200289351^2 + 17030286000^2 &= 102030201710649^2 & 102030200275799^2 + 17191902000^2 &= 102030201724201^2 \\
1020304030200289351^2 + 1703030286000^2 &= 1020304030201710649^2 & 1020304030200275799^2 + 1719191902000^2 &= 1020304030201724201^2 \\
&& & (4.843) & & (4.851)
\end{aligned}$$

$$\begin{aligned}
0287664^2 + 1688000^2 &= 1712336^2 & 0274096^2 + 1704000^2 &= 1725904^2 \\
10200287664^2 + 170488000^2 &= 10201712336^2 & 10200274096^2 + 172104000^2 &= 10201725904^2 \\
102030200287664^2 + 17050488000^2 &= 102030201712336^2 & 102030200274096^2 + 17212104000^2 &= 102030201725904^2 \\
1020304030200287664^2 + 1705050488000^2 &= 1020304030201712336^2 & 1020304030200274096^2 + 1721212104000^2 &= 1020304030201725904^2 \\
&& & (4.844) & & (4.852)
\end{aligned}$$

$$\begin{aligned}
0285975^2 + 1690000^2 &= 1714025^2 & 0272391^2 + 1706000^2 &= 1727609^2 \\
10200285975^2 + 170690000^2 &= 10201714025^2 & 10200272391^2 + 172306000^2 &= 10201727609^2 \\
102030200285975^2 + 17070690000^2 &= 102030201714025^2 & 102030200272391^2 + 17232306000^2 &= 102030201727609^2 \\
1020304030200285975^2 + 1707070690000^2 &= 1020304030201714025^2 & 1020304030200272391^2 + 1723232306000^2 &= 1020304030201727609^2 \\
&& & (4.845) & & (4.853)
\end{aligned}$$

$$\begin{aligned}
0284284^2 + 1692000^2 &= 1715716^2 & 0270684^2 + 1708000^2 &= 1729316^2 \\
10200284284^2 + 170892000^2 &= 10201715716^2 & 10200270684^2 + 172508000^2 &= 10201729316^2 \\
102030200284284^2 + 17090892000^2 &= 102030201715716^2 & 102030200270684^2 + 17252508000^2 &= 102030201729316^2 \\
1020304030200284284^2 + 1709090892000^2 &= 1020304030201715716^2 & 1020304030200270684^2 + 1725252508000^2 &= 1020304030201729316^2 \\
&& & (4.846) & & (4.854)
\end{aligned}$$

$$\begin{aligned}
0282591^2 + 1694000^2 &= 1717409^2 & 0268975^2 + 1710000^2 &= 1731025^2 \\
10200282591^2 + 171094000^2 &= 10201717409^2 & 10200268975^2 + 172710000^2 &= 10201731025^2 \\
102030200282591^2 + 17111094000^2 &= 102030201717409^2 & 102030200268975^2 + 17272710000^2 &= 102030201731025^2 \\
1020304030200282591^2 + 1711111094000^2 &= 1020304030201717409^2 & 1020304030200268975^2 + 1727272710000^2 &= 1020304030201731025^2 \\
&& & (4.847) & & (4.855)
\end{aligned}$$

$$\begin{array}{lll}
0267264^2 + 1712000^2 & = & 1732736^2 \\
1020\ 0267264^2 + 172912000^2 & = & 10201\ 732736^2 \\
10203020\ 0267264^2 + 17292912000^2 & = & 102030201\ 732736^2 \\
102030403020\ 0267264^2 + 1729292912000^2 & = & 1020304030201\ 732736^2 \\
& & (4.856)
\end{array}
\qquad
\begin{array}{lll}
0253504^2 + 1728000^2 & = & 1746496^2 \\
1020\ 0253504^2 + 174528000^2 & = & 10201\ 746496^2 \\
10203020\ 0253504^2 + 17454528000^2 & = & 102030201\ 746496^2 \\
102030403020\ 0253504^2 + 1745454528000^2 & = & 1020304030201\ 746496^2 \\
& & (4.864)
\end{array}$$

$$\begin{array}{lll}
0265551^2 + 1714000^2 & = & 1734449^2 \\
1020\ 0265551^2 + 173114000^2 & = & 10201\ 734449^2 \\
10203020\ 0265551^2 + 17313114000^2 & = & 102030201\ 734449^2 \\
102030403020\ 0265551^2 + 1731313114000^2 & = & 1020304030201\ 734449^2 \\
& & (4.857)
\end{array}
\qquad
\begin{array}{lll}
0251775^2 + 1730000^2 & = & 1748225^2 \\
1020\ 0251775^2 + 174730000^2 & = & 10201\ 748225^2 \\
10203020\ 0251775^2 + 17474730000^2 & = & 102030201\ 748225^2 \\
102030403020\ 0251775^2 + 1747474730000^2 & = & 1020304030201\ 748225^2 \\
& & (4.865)
\end{array}$$

$$\begin{array}{lll}
0263836^2 + 1716000^2 & = & 1736164^2 \\
1020\ 0263836^2 + 173316000^2 & = & 10201\ 736164^2 \\
10203020\ 0263836^2 + 17333316000^2 & = & 102030201\ 736164^2 \\
102030403020\ 0263836^2 + 1733333316000^2 & = & 1020304030201\ 736164^2 \\
& & (4.858)
\end{array}
\qquad
\begin{array}{lll}
0250044^2 + 1732000^2 & = & 1749956^2 \\
1020\ 0250044^2 + 174932000^2 & = & 10201\ 749956^2 \\
10203020\ 0250044^2 + 17494932000^2 & = & 102030201\ 749956^2 \\
102030403020\ 0250044^2 + 1749494932000^2 & = & 1020304030201\ 749956^2 \\
& & (4.866)
\end{array}$$

$$\begin{array}{lll}
0262119^2 + 1718000^2 & = & 1737881^2 \\
1020\ 0262119^2 + 173518000^2 & = & 10201\ 737881^2 \\
10203020\ 0262119^2 + 17353518000^2 & = & 102030201\ 737881^2 \\
102030403020\ 0262119^2 + 1735353518000^2 & = & 1020304030201\ 737881^2 \\
& & (4.859)
\end{array}
\qquad
\begin{array}{lll}
0248311^2 + 1734000^2 & = & 1751689^2 \\
1020\ 0248311^2 + 175134000^2 & = & 10201\ 751689^2 \\
10203020\ 0248311^2 + 17515134000^2 & = & 102030201\ 751689^2 \\
102030403020\ 0248311^2 + 1751515134000^2 & = & 1020304030201\ 751689^2 \\
& & (4.867)
\end{array}$$

$$\begin{array}{lll}
0260400^2 + 1720000^2 & = & 1739600^2 \\
1020\ 0260400^2 + 173720000^2 & = & 10201\ 739600^2 \\
10203020\ 0260400^2 + 17373720000^2 & = & 102030201\ 739600^2 \\
102030403020\ 0260400^2 + 1737373720000^2 & = & 1020304030201\ 739600^2 \\
& & (4.860)
\end{array}
\qquad
\begin{array}{lll}
0246576^2 + 1736000^2 & = & 1753424^2 \\
1020\ 0246576^2 + 175336000^2 & = & 10201\ 753424^2 \\
10203020\ 0246576^2 + 17535336000^2 & = & 102030201\ 753424^2 \\
102030403020\ 0246576^2 + 1753535336000^2 & = & 1020304030201\ 753424^2 \\
& & (4.868)
\end{array}$$

$$\begin{array}{lll}
0258679^2 + 1722000^2 & = & 1741321^2 \\
1020\ 0258679^2 + 173922000^2 & = & 10201\ 741321^2 \\
10203020\ 0258679^2 + 17393922000^2 & = & 102030201\ 741321^2 \\
102030403020\ 0258679^2 + 1739393922000^2 & = & 1020304030201\ 741321^2 \\
& & (4.861)
\end{array}
\qquad
\begin{array}{lll}
0244839^2 + 1738000^2 & = & 1755161^2 \\
1020\ 0244839^2 + 175538000^2 & = & 10201\ 755161^2 \\
10203020\ 0244839^2 + 17555538000^2 & = & 102030201\ 755161^2 \\
102030403020\ 0244839^2 + 1755555538000^2 & = & 1020304030201\ 755161^2 \\
& & (4.869)
\end{array}$$

$$\begin{array}{lll}
0256956^2 + 1724000^2 & = & 1743044^2 \\
1020\ 0256956^2 + 174124000^2 & = & 10201\ 743044^2 \\
10203020\ 0256956^2 + 17414124000^2 & = & 102030201\ 743044^2 \\
102030403020\ 0256956^2 + 1741414124000^2 & = & 1020304030201\ 743044^2 \\
& & (4.862)
\end{array}
\qquad
\begin{array}{lll}
0243100^2 + 1740000^2 & = & 1756900^2 \\
1020\ 0243100^2 + 175740000^2 & = & 10201\ 756900^2 \\
10203020\ 0243100^2 + 17575740000^2 & = & 102030201\ 756900^2 \\
102030403020\ 0243100^2 + 1757575740000^2 & = & 1020304030201\ 756900^2 \\
& & (4.870)
\end{array}$$

$$\begin{array}{lll}
0255231^2 + 1726000^2 & = & 1744769^2 \\
1020\ 0255231^2 + 174326000^2 & = & 10201\ 744769^2 \\
10203020\ 0255231^2 + 17434326000^2 & = & 102030201\ 744769^2 \\
102030403020\ 0255231^2 + 1743434326000^2 & = & 1020304030201\ 744769^2 \\
& & (4.863)
\end{array}
\qquad
\begin{array}{lll}
0241359^2 + 1742000^2 & = & 1758641^2 \\
1020\ 0241359^2 + 175942000^2 & = & 10201\ 758641^2 \\
10203020\ 0241359^2 + 17595942000^2 & = & 102030201\ 758641^2 \\
102030403020\ 0241359^2 + 1759595942000^2 & = & 1020304030201\ 758641^2 \\
& & (4.871)
\end{array}$$



$0239616^2 + 1744000^2 = 1760384^2$	$0225600^2 + 1760000^2 = 1774400^2$
$1020\ 0239616^2 + 176144000^2 = 10201\ 760384^2$	$1020\ 0225600^2 + 177760000^2 = 10201\ 774400^2$
$10203020\ 0239616^2 + 17616144000^2 = 102030201\ 760384^2$	$10203020\ 0225600^2 + 17777760000^2 = 102030201\ 774400^2$
$102030403020\ 0239616^2 + 1761616144000^2 = 1020304030201\ 760384^2$ (4.872)	$102030403020\ 0225600^2 + 1777777760000^2 = 1020304030201\ 774400^2$ (4.880)
$0237871^2 + 1746000^2 = 1762129^2$	$0223839^2 + 1762000^2 = 1776161^2$
$1020\ 0237871^2 + 176346000^2 = 10201\ 762129^2$	$1020\ 0223839^2 + 177962000^2 = 10201\ 776161^2$
$10203020\ 0237871^2 + 17636346000^2 = 102030201\ 762129^2$	$10203020\ 0223839^2 + 17797962000^2 = 102030201\ 776161^2$
$102030403020\ 0237871^2 + 1763636346000^2 = 1020304030201\ 762129^2$ (4.873)	$102030403020\ 0223839^2 + 1779797962000^2 = 1020304030201\ 776161^2$ (4.881)
$0236124^2 + 1748000^2 = 1763876^2$	$0222076^2 + 1764000^2 = 1777924^2$
$1020\ 0236124^2 + 176548000^2 = 10201\ 763876^2$	$1020\ 0222076^2 + 178164000^2 = 10201\ 777924^2$
$10203020\ 0236124^2 + 17656548000^2 = 102030201\ 763876^2$	$10203020\ 0222076^2 + 17818164000^2 = 102030201\ 777924^2$
$102030403020\ 0236124^2 + 1765656548000^2 = 1020304030201\ 763876^2$ (4.874)	$102030403020\ 0222076^2 + 1781818164000^2 = 1020304030201\ 777924^2$ (4.882)
$0234375^2 + 1750000^2 = 1765625^2$	$0220311^2 + 1766000^2 = 1779689^2$
$1020\ 0234375^2 + 176750000^2 = 10201\ 765625^2$	$1020\ 0220311^2 + 178366000^2 = 10201\ 779689^2$
$10203020\ 0234375^2 + 17676750000^2 = 102030201\ 765625^2$	$10203020\ 0220311^2 + 17838366000^2 = 102030201\ 779689^2$
$102030403020\ 0234375^2 + 1767676750000^2 = 1020304030201\ 765625^2$ (4.875)	$102030403020\ 0220311^2 + 1783838366000^2 = 1020304030201\ 779689^2$ (4.883)
$0232624^2 + 1752000^2 = 1767376^2$	$0218544^2 + 1768000^2 = 1781456^2$
$1020\ 0232624^2 + 176952000^2 = 10201\ 767376^2$	$1020\ 0218544^2 + 178568000^2 = 10201\ 781456^2$
$10203020\ 0232624^2 + 17696952000^2 = 102030201\ 767376^2$	$10203020\ 0218544^2 + 17858568000^2 = 102030201\ 781456^2$
$102030403020\ 0232624^2 + 1769696952000^2 = 1020304030201\ 767376^2$ (4.876)	$102030403020\ 0218544^2 + 1785858568000^2 = 1020304030201\ 781456^2$ (4.884)
$0230871^2 + 1754000^2 = 1769129^2$	$0216775^2 + 1770000^2 = 1783225^2$
$1020\ 0230871^2 + 177154000^2 = 10201\ 769129^2$	$1020\ 0216775^2 + 178770000^2 = 10201\ 783225^2$
$10203020\ 0230871^2 + 17717154000^2 = 102030201\ 769129^2$	$10203020\ 0216775^2 + 17878770000^2 = 102030201\ 783225^2$
$102030403020\ 0230871^2 + 1771717154000^2 = 1020304030201\ 769129^2$ (4.877)	$102030403020\ 0216775^2 + 1787878770000^2 = 1020304030201\ 783225^2$ (4.885)
$0229116^2 + 1756000^2 = 1770884^2$	$0215004^2 + 1772000^2 = 1784996^2$
$1020\ 0229116^2 + 177356000^2 = 10201\ 770884^2$	$1020\ 0215004^2 + 178972000^2 = 10201\ 784996^2$
$10203020\ 0229116^2 + 17737356000^2 = 102030201\ 770884^2$	$10203020\ 0215004^2 + 17898972000^2 = 102030201\ 784996^2$
$102030403020\ 0229116^2 + 1773737356000^2 = 1020304030201\ 770884^2$ (4.878)	$102030403020\ 0215004^2 + 1789898972000^2 = 1020304030201\ 784996^2$ (4.886)
$0227359^2 + 1758000^2 = 1772641^2$	$0213231^2 + 1774000^2 = 1786769^2$
$1020\ 0227359^2 + 177558000^2 = 10201\ 772641^2$	$1020\ 0213231^2 + 179174000^2 = 10201\ 786769^2$
$10203020\ 0227359^2 + 17757558000^2 = 102030201\ 772641^2$	$10203020\ 0213231^2 + 17919174000^2 = 102030201\ 786769^2$
$102030403020\ 0227359^2 + 1775757558000^2 = 1020304030201\ 772641^2$ (4.879)	$102030403020\ 0213231^2 + 1791919174000^2 = 1020304030201\ 786769^2$ (4.887)

$$\begin{array}{lcl}
 0211456^2 + 1776000^2 & = & 1788544^2 \\
 10200211456^2 + 179376000^2 & = & 10201788544^2 \\
 102030200211456^2 + 17939376000^2 & = & 102030201788544^2 \\
 1020304030200211456^2 + 1793939376000^2 & = & 1020304030201788544^2 \\
 & & (4.888)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0200764^2 + 1788000^2 & = & 1799236^2 \\
 10200200764^2 + 180588000^2 & = & 10201799236^2 \\
 102030200200764^2 + 18060588000^2 & = & 102030201799236^2 \\
 1020304030200200764^2 + 1806060588000^2 & = & 1020304030201799236^2 \\
 & & (4.894)
 \end{array}$$

$$\begin{array}{lcl}
 0209679^2 + 1778000^2 & = & 1790321^2 \\
 10200209679^2 + 179578000^2 & = & 10201790321^2 \\
 102030200209679^2 + 17959578000^2 & = & 102030201790321^2 \\
 1020304030200209679^2 + 1795959578000^2 & = & 1020304030201790321^2 \\
 & & (4.889)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0198975^2 + 1790000^2 & = & 1801025^2 \\
 10200198975^2 + 180790000^2 & = & 10201801025^2 \\
 102030200198975^2 + 18080790000^2 & = & 102030201801025^2 \\
 1020304030200198975^2 + 1808080790000^2 & = & 1020304030201801025^2 \\
 & & (4.895)
 \end{array}$$

$$\begin{array}{lcl}
 0207900^2 + 1780000^2 & = & 1792100^2 \\
 10200207900^2 + 179780000^2 & = & 10201792100^2 \\
 102030200207900^2 + 17979780000^2 & = & 102030201792100^2 \\
 1020304030200207900^2 + 1797979780000^2 & = & 1020304030201792100^2 \\
 & & (4.890)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0197184^2 + 1792000^2 & = & 1802816^2 \\
 10200197184^2 + 180992000^2 & = & 10201802816^2 \\
 102030200197184^2 + 18100992000^2 & = & 102030201802816^2 \\
 1020304030200197184^2 + 1810100992000^2 & = & 1020304030201802816^2 \\
 & & (4.896)
 \end{array}$$

$$\begin{array}{lcl}
 0206119^2 + 1782000^2 & = & 1793881^2 \\
 10200206119^2 + 179982000^2 & = & 10201793881^2 \\
 102030200206119^2 + 17999982000^2 & = & 102030201793881^2 \\
 1020304030200206119^2 + 1799999982000^2 & = & 1020304030201793881^2 \\
 & & (4.891)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0195391^2 + 1794000^2 & = & 1804609^2 \\
 10200195391^2 + 181194000^2 & = & 10201804609^2 \\
 102030200195391^2 + 18121194000^2 & = & 102030201804609^2 \\
 1020304030200195391^2 + 1812121194000^2 & = & 1020304030201804609^2 \\
 & & (4.897)
 \end{array}$$

$$\begin{array}{lcl}
 0204336^2 + 1784000^2 & = & 1795664^2 \\
 10200204336^2 + 180184000^2 & = & 10201795664^2 \\
 102030200204336^2 + 18020184000^2 & = & 102030201795664^2 \\
 1020304030200204336^2 + 1802020184000^2 & = & 1020304030201795664^2 \\
 & & (4.892)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0193596^2 + 1796000^2 & = & 1806404^2 \\
 10200193596^2 + 181396000^2 & = & 10201806404^2 \\
 102030200193596^2 + 18141396000^2 & = & 102030201806404^2 \\
 1020304030200193596^2 + 1814141396000^2 & = & 1020304030201806404^2 \\
 & & (4.898)
 \end{array}$$

$$\begin{array}{lcl}
 0202551^2 + 1786000^2 & = & 1797449^2 \\
 10200202551^2 + 180386000^2 & = & 10201797449^2 \\
 102030200202551^2 + 18040386000^2 & = & 102030201797449^2 \\
 1020304030200202551^2 + 1804040386000^2 & = & 1020304030201797449^2 \\
 & & (4.893)
 \end{array}
 \qquad
 \begin{array}{lcl}
 0191799^2 + 1798000^2 & = & 1808201^2 \\
 10200191799^2 + 181598000^2 & = & 10201808201^2 \\
 102030200191799^2 + 18161598000^2 & = & 102030201808201^2 \\
 1020304030200191799^2 + 1816161598000^2 & = & 1020304030201808201^2 \\
 & & (4.899)
 \end{array}$$

#### 4.10 For $n = 900, 901, 901, \dots, 997, 998, 999$ :

Let's consider

$$m = 1000, 101000, 10101000, 1010101000, 101010101000, 10101010101000, 1010101010101000, 101010101010101000, 10101010101010101000$$

in (1.1), then for each value of  $n = 900, 901, 901, \dots, 997, 998, 999$ ; there are 100 *palindromic-type pandigital Pythagorean patterns* given below. In each case, only first four values are written. The other 5 values can be written on similar lines as done in subsection 4.1.1.

$$\begin{array}{lll}
0190000^2 + 1800000^2 & = & \mathbf{1}810000^2 \\
\mathbf{1020}0190000^2 + 181800000^2 & = & \mathbf{10201}810000^2 \\
\mathbf{10203020}0190000^2 + 18181800000^2 & = & \mathbf{102030201}810000^2 \\
\mathbf{102030403020}0190000^2 + 1818181800000^2 & = & \mathbf{1020304030201}810000^2 \\
& & (4.900)
\end{array}
\qquad
\begin{array}{lll}
0175536^2 + 1816000^2 & = & \mathbf{1}824464^2 \\
\mathbf{1020}0175536^2 + 183416000^2 & = & \mathbf{10201}824464^2 \\
\mathbf{10203020}0175536^2 + 18343416000^2 & = & \mathbf{102030201}824464^2 \\
\mathbf{102030403020}0175536^2 + 1834343416000^2 & = & \mathbf{1020304030201}824464^2 \\
& & (4.908)
\end{array}$$

$$\begin{array}{lll}
0188199^2 + 1802000^2 & = & \mathbf{1}811801^2 \\
\mathbf{1020}0188199^2 + 182002000^2 & = & \mathbf{10201}811801^2 \\
\mathbf{10203020}0188199^2 + 18202002000^2 & = & \mathbf{102030201}811801^2 \\
\mathbf{102030403020}0188199^2 + 1820202002000^2 & = & \mathbf{1020304030201}811801^2 \\
& & (4.901)
\end{array}
\qquad
\begin{array}{lll}
0173719^2 + 1818000^2 & = & \mathbf{1}826281^2 \\
\mathbf{1020}0173719^2 + 183618000^2 & = & \mathbf{10201}826281^2 \\
\mathbf{10203020}0173719^2 + 18363618000^2 & = & \mathbf{102030201}826281^2 \\
\mathbf{102030403020}0173719^2 + 1836363618000^2 & = & \mathbf{1020304030201}826281^2 \\
& & (4.909)
\end{array}$$

$$\begin{array}{lll}
0186396^2 + 1804000^2 & = & \mathbf{1}813604^2 \\
\mathbf{1020}0186396^2 + 182204000^2 & = & \mathbf{10201}813604^2 \\
\mathbf{10203020}0186396^2 + 18222204000^2 & = & \mathbf{102030201}813604^2 \\
\mathbf{102030403020}0186396^2 + 1822222204000^2 & = & \mathbf{1020304030201}813604^2 \\
& & (4.902)
\end{array}
\qquad
\begin{array}{lll}
0171900^2 + 1820000^2 & = & \mathbf{1}828100^2 \\
\mathbf{1020}0171900^2 + 183820000^2 & = & \mathbf{10201}828100^2 \\
\mathbf{10203020}0171900^2 + 18383820000^2 & = & \mathbf{102030201}828100^2 \\
\mathbf{102030403020}0171900^2 + 1838383820000^2 & = & \mathbf{1020304030201}828100^2 \\
& & (4.910)
\end{array}$$

$$\begin{array}{lll}
0184591^2 + 1806000^2 & = & \mathbf{1}815409^2 \\
\mathbf{1020}0184591^2 + 182406000^2 & = & \mathbf{10201}815409^2 \\
\mathbf{10203020}0184591^2 + 18242406000^2 & = & \mathbf{102030201}815409^2 \\
\mathbf{102030403020}0184591^2 + 1824242406000^2 & = & \mathbf{1020304030201}815409^2 \\
& & (4.903)
\end{array}
\qquad
\begin{array}{lll}
0170079^2 + 1822000^2 & = & \mathbf{1}829921^2 \\
\mathbf{1020}0170079^2 + 184022000^2 & = & \mathbf{10201}829921^2 \\
\mathbf{10203020}0170079^2 + 18404022000^2 & = & \mathbf{102030201}829921^2 \\
\mathbf{102030403020}0170079^2 + 1840404022000^2 & = & \mathbf{1020304030201}829921^2 \\
& & (4.911)
\end{array}$$

$$\begin{array}{lll}
0182784^2 + 1808000^2 & = & \mathbf{1}817216^2 \\
\mathbf{1020}0182784^2 + 182608000^2 & = & \mathbf{10201}817216^2 \\
\mathbf{10203020}0182784^2 + 18262608000^2 & = & \mathbf{102030201}817216^2 \\
\mathbf{102030403020}0182784^2 + 1826262608000^2 & = & \mathbf{1020304030201}817216^2 \\
& & (4.904)
\end{array}
\qquad
\begin{array}{lll}
0168256^2 + 1824000^2 & = & \mathbf{1}831744^2 \\
\mathbf{1020}0168256^2 + 184224000^2 & = & \mathbf{10201}831744^2 \\
\mathbf{10203020}0168256^2 + 18424224000^2 & = & \mathbf{102030201}831744^2 \\
\mathbf{102030403020}0168256^2 + 1842424224000^2 & = & \mathbf{1020304030201}831744^2 \\
& & (4.912)
\end{array}$$

$$\begin{array}{lll}
0180975^2 + 1810000^2 & = & \mathbf{1}819025^2 \\
\mathbf{1020}0180975^2 + 182810000^2 & = & \mathbf{10201}819025^2 \\
\mathbf{10203020}0180975^2 + 18282810000^2 & = & \mathbf{102030201}819025^2 \\
\mathbf{102030403020}0180975^2 + 1828282810000^2 & = & \mathbf{1020304030201}819025^2 \\
& & (4.905)
\end{array}
\qquad
\begin{array}{lll}
0166431^2 + 1826000^2 & = & \mathbf{1}833569^2 \\
\mathbf{1020}0166431^2 + 184426000^2 & = & \mathbf{10201}833569^2 \\
\mathbf{10203020}0166431^2 + 18444426000^2 & = & \mathbf{102030201}833569^2 \\
\mathbf{102030403020}0166431^2 + 1844444426000^2 & = & \mathbf{1020304030201}833569^2 \\
& & (4.913)
\end{array}$$

$$\begin{array}{lll}
0179164^2 + 1812000^2 & = & \mathbf{1}820836^2 \\
\mathbf{1020}0179164^2 + 183012000^2 & = & \mathbf{10201}820836^2 \\
\mathbf{10203020}0179164^2 + 18303012000^2 & = & \mathbf{102030201}820836^2 \\
\mathbf{102030403020}0179164^2 + 1830303012000^2 & = & \mathbf{1020304030201}820836^2 \\
& & (4.906)
\end{array}
\qquad
\begin{array}{lll}
0164604^2 + 1828000^2 & = & \mathbf{1}835396^2 \\
\mathbf{1020}0164604^2 + 184628000^2 & = & \mathbf{10201}835396^2 \\
\mathbf{10203020}0164604^2 + 18464628000^2 & = & \mathbf{102030201}835396^2 \\
\mathbf{102030403020}0164604^2 + 1846464628000^2 & = & \mathbf{1020304030201}835396^2 \\
& & (4.914)
\end{array}$$

$$\begin{array}{lll}
0177351^2 + 1814000^2 & = & \mathbf{1}822649^2 \\
\mathbf{1020}0177351^2 + 183214000^2 & = & \mathbf{10201}822649^2 \\
\mathbf{10203020}0177351^2 + 18323214000^2 & = & \mathbf{102030201}822649^2 \\
\mathbf{102030403020}0177351^2 + 1832323214000^2 & = & \mathbf{1020304030201}822649^2 \\
& & (4.907)
\end{array}
\qquad
\begin{array}{lll}
0162775^2 + 1830000^2 & = & \mathbf{1}837225^2 \\
\mathbf{1020}0162775^2 + 184830000^2 & = & \mathbf{10201}837225^2 \\
\mathbf{10203020}0162775^2 + 18484830000^2 & = & \mathbf{102030201}837225^2 \\
\mathbf{102030403020}0162775^2 + 1848484830000^2 & = & \mathbf{1020304030201}837225^2 \\
& & (4.915)
\end{array}$$

$0160944^2 + 1832000^2 = 1839056^2$	$0146224^2 + 1848000^2 = 1853776^2$
$10200160944^2 + 185032000^2 = 10201839056^2$	$10200146224^2 + 186648000^2 = 10201853776^2$
$102030200160944^2 + 18505032000^2 = 102030201839056^2$	$102030200146224^2 + 18666648000^2 = 102030201853776^2$
$1020304030200160944^2 + 1850505032000^2 = 1020304030201839056^2$ (4.916)	$1020304030200146224^2 + 1866666648000^2 = 1020304030201853776^2$ (4.924)
$0159111^2 + 1834000^2 = 1840889^2$	$0144375^2 + 1850000^2 = 1855625^2$
$10200159111^2 + 185234000^2 = 10201840889^2$	$10200144375^2 + 186850000^2 = 10201855625^2$
$102030200159111^2 + 18525234000^2 = 102030201840889^2$	$102030200144375^2 + 18686850000^2 = 102030201855625^2$
$1020304030200159111^2 + 1852525234000^2 = 1020304030201840889^2$ (4.917)	$1020304030200144375^2 + 1868686850000^2 = 1020304030201855625^2$ (4.925)
$0157276^2 + 1836000^2 = 1842724^2$	$0142524^2 + 1852000^2 = 1857476^2$
$10200157276^2 + 185436000^2 = 10201842724^2$	$10200142524^2 + 187052000^2 = 10201857476^2$
$102030200157276^2 + 18545436000^2 = 102030201842724^2$	$102030200142524^2 + 18707052000^2 = 102030201857476^2$
$1020304030200157276^2 + 1854545436000^2 = 1020304030201842724^2$ (4.918)	$1020304030200142524^2 + 1870707052000^2 = 1020304030201857476^2$ (4.926)
$0155439^2 + 1838000^2 = 1844561^2$	$0140671^2 + 1854000^2 = 1859329^2$
$10200155439^2 + 185638000^2 = 10201844561^2$	$10200140671^2 + 187254000^2 = 10201859329^2$
$102030200155439^2 + 18565638000^2 = 102030201844561^2$	$102030200140671^2 + 18727254000^2 = 102030201859329^2$
$1020304030200155439^2 + 1856565638000^2 = 1020304030201844561^2$ (4.919)	$1020304030200140671^2 + 1872727254000^2 = 1020304030201859329^2$ (4.927)
$0153600^2 + 1840000^2 = 1846400^2$	$0138816^2 + 1856000^2 = 1861184^2$
$10200153600^2 + 185840000^2 = 10201846400^2$	$10200138816^2 + 187456000^2 = 10201861184^2$
$102030200153600^2 + 18585840000^2 = 102030201846400^2$	$102030200138816^2 + 18747456000^2 = 102030201861184^2$
$1020304030200153600^2 + 1858585840000^2 = 1020304030201846400^2$ (4.920)	$1020304030200138816^2 + 1874747456000^2 = 1020304030201861184^2$ (4.928)
$0151759^2 + 1842000^2 = 1848241^2$	$0136959^2 + 1858000^2 = 1863041^2$
$10200151759^2 + 186042000^2 = 10201848241^2$	$10200136959^2 + 187658000^2 = 10201863041^2$
$102030200151759^2 + 18606042000^2 = 102030201848241^2$	$102030200136959^2 + 18767658000^2 = 102030201863041^2$
$1020304030200151759^2 + 1860606042000^2 = 1020304030201848241^2$ (4.921)	$1020304030200136959^2 + 1876767658000^2 = 1020304030201863041^2$ (4.929)
$0149916^2 + 1844000^2 = 1850084^2$	$0135100^2 + 1860000^2 = 1864900^2$
$10200149916^2 + 186244000^2 = 10201850084^2$	$10200135100^2 + 187860000^2 = 10201864900^2$
$102030200149916^2 + 18626244000^2 = 102030201850084^2$	$102030200135100^2 + 18787860000^2 = 102030201864900^2$
$1020304030200149916^2 + 1862626244000^2 = 1020304030201850084^2$ (4.922)	$1020304030200135100^2 + 1878787860000^2 = 1020304030201864900^2$ (4.930)
$0148071^2 + 1846000^2 = 1851929^2$	$0133239^2 + 1862000^2 = 1866761^2$
$10200148071^2 + 186446000^2 = 10201851929^2$	$10200133239^2 + 188062000^2 = 10201866761^2$
$102030200148071^2 + 18646446000^2 = 102030201851929^2$	$102030200133239^2 + 18808062000^2 = 102030201866761^2$
$1020304030200148071^2 + 1864646446000^2 = 1020304030201851929^2$ (4.923)	$1020304030200133239^2 + 1880808062000^2 = 1020304030201866761^2$ (4.931)

$$\begin{array}{lcl}
0131376^2 + 1864000^2 & = & \mathbf{1}868624^2 \\
\mathbf{1020}0131376^2 + 188264000^2 & = & \mathbf{10201}868624^2 \\
\mathbf{10203020}0131376^2 + 18828264000^2 & = & \mathbf{102030201}868624^2 \\
\mathbf{102030403020}0131376^2 + 1882828264000^2 & = & \mathbf{1020304030201}868624^2 \\
& & (4.932)
\end{array}
\qquad
\begin{array}{lcl}
0116400^2 + 1880000^2 & = & \mathbf{1}883600^2 \\
\mathbf{1020}0116400^2 + 189880000^2 & = & \mathbf{10201}883600^2 \\
\mathbf{10203020}0116400^2 + 18989880000^2 & = & \mathbf{102030201}883600^2 \\
\mathbf{102030403020}0116400^2 + 1898989880000^2 & = & \mathbf{1020304030201}883600^2 \\
& & (4.940)
\end{array}$$

$$\begin{array}{lcl}
0129511^2 + 1866000^2 & = & \mathbf{1}870489^2 \\
\mathbf{1020}0129511^2 + 188466000^2 & = & \mathbf{10201}870489^2 \\
\mathbf{10203020}0129511^2 + 18848466000^2 & = & \mathbf{102030201}870489^2 \\
\mathbf{102030403020}0129511^2 + 1884848466000^2 & = & \mathbf{1020304030201}870489^2 \\
& & (4.933)
\end{array}
\qquad
\begin{array}{lcl}
0114519^2 + 1882000^2 & = & \mathbf{1}885481^2 \\
\mathbf{1020}0114519^2 + 190082000^2 & = & \mathbf{10201}885481^2 \\
\mathbf{10203020}0114519^2 + 19010082000^2 & = & \mathbf{102030201}885481^2 \\
\mathbf{102030403020}0114519^2 + 1901010082000^2 & = & \mathbf{1020304030201}885481^2 \\
& & (4.941)
\end{array}$$

$$\begin{array}{lcl}
0127644^2 + 1868000^2 & = & \mathbf{1}872356^2 \\
\mathbf{1020}0127644^2 + 188668000^2 & = & \mathbf{10201}872356^2 \\
\mathbf{10203020}0127644^2 + 18868668000^2 & = & \mathbf{102030201}872356^2 \\
\mathbf{102030403020}0127644^2 + 1886868668000^2 & = & \mathbf{1020304030201}872356^2 \\
& & (4.934)
\end{array}
\qquad
\begin{array}{lcl}
0112636^2 + 1884000^2 & = & \mathbf{1}887364^2 \\
\mathbf{1020}0112636^2 + 190284000^2 & = & \mathbf{10201}887364^2 \\
\mathbf{10203020}0112636^2 + 19030284000^2 & = & \mathbf{102030201}887364^2 \\
\mathbf{102030403020}0112636^2 + 1903030284000^2 & = & \mathbf{1020304030201}887364^2 \\
& & (4.942)
\end{array}$$

$$\begin{array}{lcl}
0125775^2 + 1870000^2 & = & \mathbf{1}874225^2 \\
\mathbf{1020}0125775^2 + 188870000^2 & = & \mathbf{10201}874225^2 \\
\mathbf{10203020}0125775^2 + 18888870000^2 & = & \mathbf{102030201}874225^2 \\
\mathbf{102030403020}0125775^2 + 1888888870000^2 & = & \mathbf{1020304030201}874225^2 \\
& & (4.935)
\end{array}
\qquad
\begin{array}{lcl}
0110751^2 + 1886000^2 & = & \mathbf{1}889249^2 \\
\mathbf{1020}0110751^2 + 190486000^2 & = & \mathbf{10201}889249^2 \\
\mathbf{10203020}0110751^2 + 19050486000^2 & = & \mathbf{102030201}889249^2 \\
\mathbf{102030403020}0110751^2 + 1905050486000^2 & = & \mathbf{1020304030201}889249^2 \\
& & (4.943)
\end{array}$$

$$\begin{array}{lcl}
0123904^2 + 1872000^2 & = & \mathbf{1}876096^2 \\
\mathbf{1020}0123904^2 + 189072000^2 & = & \mathbf{10201}876096^2 \\
\mathbf{10203020}0123904^2 + 18909072000^2 & = & \mathbf{102030201}876096^2 \\
\mathbf{102030403020}0123904^2 + 1890909072000^2 & = & \mathbf{1020304030201}876096^2 \\
& & (4.936)
\end{array}
\qquad
\begin{array}{lcl}
0108864^2 + 1888000^2 & = & \mathbf{1}891136^2 \\
\mathbf{1020}0108864^2 + 190688000^2 & = & \mathbf{10201}891136^2 \\
\mathbf{10203020}0108864^2 + 19070688000^2 & = & \mathbf{102030201}891136^2 \\
\mathbf{102030403020}0108864^2 + 1907070688000^2 & = & \mathbf{1020304030201}891136^2 \\
& & (4.944)
\end{array}$$

$$\begin{array}{lcl}
0122031^2 + 1874000^2 & = & \mathbf{1}877969^2 \\
\mathbf{1020}0122031^2 + 189274000^2 & = & \mathbf{10201}877969^2 \\
\mathbf{10203020}0122031^2 + 18929274000^2 & = & \mathbf{102030201}877969^2 \\
\mathbf{102030403020}0122031^2 + 1892929274000^2 & = & \mathbf{1020304030201}877969^2 \\
& & (4.937)
\end{array}
\qquad
\begin{array}{lcl}
0106975^2 + 1890000^2 & = & \mathbf{1}893025^2 \\
\mathbf{1020}0106975^2 + 190890000^2 & = & \mathbf{10201}893025^2 \\
\mathbf{10203020}0106975^2 + 19090890000^2 & = & \mathbf{102030201}893025^2 \\
\mathbf{102030403020}0106975^2 + 1909090890000^2 & = & \mathbf{1020304030201}893025^2 \\
& & (4.945)
\end{array}$$

$$\begin{array}{lcl}
0120156^2 + 1876000^2 & = & \mathbf{1}879844^2 \\
\mathbf{1020}0120156^2 + 189476000^2 & = & \mathbf{10201}879844^2 \\
\mathbf{10203020}0120156^2 + 18949476000^2 & = & \mathbf{102030201}879844^2 \\
\mathbf{102030403020}0120156^2 + 1894949476000^2 & = & \mathbf{1020304030201}879844^2 \\
& & (4.938)
\end{array}
\qquad
\begin{array}{lcl}
0105084^2 + 1892000^2 & = & \mathbf{1}894916^2 \\
\mathbf{1020}0105084^2 + 191092000^2 & = & \mathbf{10201}894916^2 \\
\mathbf{10203020}0105084^2 + 19111092000^2 & = & \mathbf{102030201}894916^2 \\
\mathbf{102030403020}0105084^2 + 1911111092000^2 & = & \mathbf{1020304030201}894916^2 \\
& & (4.946)
\end{array}$$

$$\begin{array}{lcl}
0118279^2 + 1878000^2 & = & \mathbf{1}881721^2 \\
\mathbf{1020}0118279^2 + 189678000^2 & = & \mathbf{10201}881721^2 \\
\mathbf{10203020}0118279^2 + 18969678000^2 & = & \mathbf{102030201}881721^2 \\
\mathbf{102030403020}0118279^2 + 1896969678000^2 & = & \mathbf{1020304030201}881721^2 \\
& & (4.939)
\end{array}
\qquad
\begin{array}{lcl}
0103191^2 + 1894000^2 & = & \mathbf{1}896809^2 \\
\mathbf{1020}0103191^2 + 191294000^2 & = & \mathbf{10201}896809^2 \\
\mathbf{10203020}0103191^2 + 19131294000^2 & = & \mathbf{102030201}896809^2 \\
\mathbf{102030403020}0103191^2 + 1913131294000^2 & = & \mathbf{1020304030201}896809^2 \\
& & (4.947)
\end{array}$$

$$\begin{array}{lll}
0101296^2 + 1896000^2 & = & 1898704^2 \\
10200101296^2 + 191496000^2 & = & 10201898704^2 \\
102030200101296^2 + 19151496000^2 & = & 102030201898704^2 \\
1020304030200101296^2 + 1915151496000^2 & = & 1020304030201898704^2 \\
& & (4.948)
\end{array}
\qquad
\begin{array}{lll}
0086064^2 + 1912000^2 & = & 1913936^2 \\
10200086064^2 + 193112000^2 & = & 10201913936^2 \\
102030200086064^2 + 19313112000^2 & = & 102030201913936^2 \\
1020304030200086064^2 + 1931313112000^2 & = & 1020304030201913936^2 \\
& & (4.956)
\end{array}$$

$$\begin{array}{lll}
0099399^2 + 1898000^2 & = & 1900601^2 \\
10200099399^2 + 191698000^2 & = & 10201900601^2 \\
102030200099399^2 + 19171698000^2 & = & 102030201900601^2 \\
1020304030200099399^2 + 1917171698000^2 & = & 1020304030201900601^2 \\
& & (4.949)
\end{array}
\qquad
\begin{array}{lll}
0084151^2 + 1914000^2 & = & 1915849^2 \\
10200084151^2 + 193314000^2 & = & 10201915849^2 \\
102030200084151^2 + 19333314000^2 & = & 102030201915849^2 \\
1020304030200084151^2 + 193333314000^2 & = & 1020304030201915849^2 \\
& & (4.957)
\end{array}$$

$$\begin{array}{lll}
0097500^2 + 1900000^2 & = & 1902500^2 \\
10200097500^2 + 191900000^2 & = & 10201902500^2 \\
102030200097500^2 + 19191900000^2 & = & 102030201902500^2 \\
1020304030200097500^2 + 1919191900000^2 & = & 1020304030201902500^2 \\
& & (4.950)
\end{array}
\qquad
\begin{array}{lll}
0082236^2 + 1916000^2 & = & 1917764^2 \\
10200082236^2 + 193516000^2 & = & 10201917764^2 \\
102030200082236^2 + 19353516000^2 & = & 102030201917764^2 \\
1020304030200082236^2 + 1935353516000^2 & = & 1020304030201917764^2 \\
& & (4.958)
\end{array}$$

$$\begin{array}{lll}
0095599^2 + 1902000^2 & = & 1904401^2 \\
10200095599^2 + 192102000^2 & = & 10201904401^2 \\
102030200095599^2 + 19212102000^2 & = & 102030201904401^2 \\
1020304030200095599^2 + 1921212102000^2 & = & 1020304030201904401^2 \\
& & (4.951)
\end{array}
\qquad
\begin{array}{lll}
0080319^2 + 1918000^2 & = & 1919681^2 \\
10200080319^2 + 193718000^2 & = & 10201919681^2 \\
102030200080319^2 + 19373718000^2 & = & 102030201919681^2 \\
1020304030200080319^2 + 1937373718000^2 & = & 1020304030201919681^2 \\
& & (4.959)
\end{array}$$

$$\begin{array}{lll}
0093696^2 + 1904000^2 & = & 1906304^2 \\
10200093696^2 + 192304000^2 & = & 10201906304^2 \\
102030200093696^2 + 19232304000^2 & = & 102030201906304^2 \\
1020304030200093696^2 + 1923232304000^2 & = & 1020304030201906304^2 \\
& & (4.952)
\end{array}
\qquad
\begin{array}{lll}
0078400^2 + 1920000^2 & = & 1921600^2 \\
10200078400^2 + 193920000^2 & = & 10201921600^2 \\
102030200078400^2 + 19393920000^2 & = & 102030201921600^2 \\
1020304030200078400^2 + 1939393920000^2 & = & 1020304030201921600^2 \\
& & (4.960)
\end{array}$$

$$\begin{array}{lll}
0091791^2 + 1906000^2 & = & 1908209^2 \\
10200091791^2 + 192506000^2 & = & 10201908209^2 \\
102030200091791^2 + 19252506000^2 & = & 102030201908209^2 \\
1020304030200091791^2 + 1925252506000^2 & = & 1020304030201908209^2 \\
& & (4.953)
\end{array}
\qquad
\begin{array}{lll}
0076479^2 + 1922000^2 & = & 1923521^2 \\
10200076479^2 + 194122000^2 & = & 10201923521^2 \\
102030200076479^2 + 19414122000^2 & = & 102030201923521^2 \\
1020304030200076479^2 + 1941414122000^2 & = & 1020304030201923521^2 \\
& & (4.961)
\end{array}$$

$$\begin{array}{lll}
0089884^2 + 1908000^2 & = & 1910116^2 \\
10200089884^2 + 192708000^2 & = & 10201910116^2 \\
102030200089884^2 + 19272708000^2 & = & 102030201910116^2 \\
1020304030200089884^2 + 1927272708000^2 & = & 1020304030201910116^2 \\
& & (4.954)
\end{array}
\qquad
\begin{array}{lll}
0074556^2 + 1924000^2 & = & 1925444^2 \\
10200074556^2 + 194324000^2 & = & 10201925444^2 \\
102030200074556^2 + 19434324000^2 & = & 102030201925444^2 \\
1020304030200074556^2 + 1943434324000^2 & = & 1020304030201925444^2 \\
& & (4.962)
\end{array}$$

$$\begin{array}{lll}
0087975^2 + 1910000^2 & = & 1912025^2 \\
10200087975^2 + 192910000^2 & = & 10201912025^2 \\
102030200087975^2 + 19292910000^2 & = & 102030201912025^2 \\
1020304030200087975^2 + 1929292910000^2 & = & 1020304030201912025^2 \\
& & (4.955)
\end{array}
\qquad
\begin{array}{lll}
0072631^2 + 1926000^2 & = & 1927369^2 \\
10200072631^2 + 194526000^2 & = & 10201927369^2 \\
102030200072631^2 + 19454526000^2 & = & 102030201927369^2 \\
1020304030200072631^2 + 1945454526000^2 & = & 1020304030201927369^2 \\
& & (4.963)
\end{array}$$

$0070704^2 + 1928000^2 = 1929296^2$	$0055216^2 + 1944000^2 = 1944784^2$
$10200070704^2 + 194728000^2 = 10201929296^2$	$10200055216^2 + 196344000^2 = 10201944784^2$
$102030200070704^2 + 19474728000^2 = 102030201929296^2$	$102030200055216^2 + 19636344000^2 = 102030201944784^2$
$1020304030200070704^2 + 1947474728000^2 = 1020304030201929296^2$ (4.964)	$1020304030200055216^2 + 1963636344000^2 = 1020304030201944784^2$ (4.972)
$0068775^2 + 1930000^2 = 1931225^2$	$0053271^2 + 1946000^2 = 1946729^2$
$10200068775^2 + 194930000^2 = 10201931225^2$	$10200053271^2 + 196546000^2 = 10201946729^2$
$102030200068775^2 + 19494930000^2 = 102030201931225^2$	$102030200053271^2 + 19656546000^2 = 102030201946729^2$
$1020304030200068775^2 + 1949494930000^2 = 1020304030201931225^2$ (4.965)	$1020304030200053271^2 + 1965656546000^2 = 1020304030201946729^2$ (4.973)
$0066844^2 + 1932000^2 = 1933156^2$	$0051324^2 + 1948000^2 = 1948676^2$
$10200066844^2 + 195132000^2 = 10201933156^2$	$10200051324^2 + 196748000^2 = 10201948676^2$
$102030200066844^2 + 19515132000^2 = 102030201933156^2$	$102030200051324^2 + 19676748000^2 = 102030201948676^2$
$1020304030200066844^2 + 1951515132000^2 = 1020304030201933156^2$ (4.966)	$1020304030200051324^2 + 1967676748000^2 = 1020304030201948676^2$ (4.974)
$0064911^2 + 1934000^2 = 1935089^2$	$0049375^2 + 1950000^2 = 1950625^2$
$10200064911^2 + 195334000^2 = 10201935089^2$	$10200049375^2 + 196950000^2 = 10201950625^2$
$102030200064911^2 + 19535334000^2 = 102030201935089^2$	$102030200049375^2 + 19696950000^2 = 102030201950625^2$
$1020304030200064911^2 + 1953535334000^2 = 1020304030201935089^2$ (4.967)	$1020304030200049375^2 + 1969696950000^2 = 1020304030201950625^2$ (4.975)
$0062976^2 + 1936000^2 = 1937024^2$	$0047424^2 + 1952000^2 = 1952576^2$
$10200062976^2 + 195536000^2 = 10201937024^2$	$10200047424^2 + 197152000^2 = 10201952576^2$
$102030200062976^2 + 19555536000^2 = 102030201937024^2$	$102030200047424^2 + 19717152000^2 = 102030201952576^2$
$1020304030200062976^2 + 1955555536000^2 = 1020304030201937024^2$ (4.968)	$1020304030200047424^2 + 1971717152000^2 = 1020304030201952576^2$ (4.976)
$0061039^2 + 1938000^2 = 1938961^2$	$0045471^2 + 1954000^2 = 1954529^2$
$10200061039^2 + 195738000^2 = 10201938961^2$	$10200045471^2 + 197354000^2 = 10201954529^2$
$102030200061039^2 + 19575738000^2 = 102030201938961^2$	$102030200045471^2 + 19737354000^2 = 102030201954529^2$
$1020304030200061039^2 + 1957575738000^2 = 1020304030201938961^2$ (4.969)	$1020304030200045471^2 + 1973737354000^2 = 1020304030201954529^2$ (4.977)
$0059100^2 + 1940000^2 = 1940900^2$	$0043516^2 + 1956000^2 = 1956484^2$
$10200059100^2 + 195940000^2 = 10201940900^2$	$10200043516^2 + 197556000^2 = 10201956484^2$
$102030200059100^2 + 19595940000^2 = 102030201940900^2$	$102030200043516^2 + 19757556000^2 = 102030201956484^2$
$1020304030200059100^2 + 1959595940000^2 = 1020304030201940900^2$ (4.970)	$1020304030200043516^2 + 1975757556000^2 = 1020304030201956484^2$ (4.978)
$0057159^2 + 1942000^2 = 1942841^2$	$0041559^2 + 1958000^2 = 1958441^2$
$10200057159^2 + 196142000^2 = 10201942841^2$	$10200041559^2 + 197758000^2 = 10201958441^2$
$102030200057159^2 + 19616142000^2 = 102030201942841^2$	$102030200041559^2 + 19777758000^2 = 102030201958441^2$
$1020304030200057159^2 + 1961616142000^2 = 1020304030201942841^2$ (4.971)	$1020304030200041559^2 + 1977777758000^2 = 1020304030201958441^2$ (4.979)

$$\begin{array}{lll}
0039600^2 + 1960000^2 & = & 1960400^2 \\
10200039600^2 + 197960000^2 & = & 10201960400^2 \\
102030200039600^2 + 19797960000^2 & = & 102030201960400^2 \\
1020304030200039600^2 + 1979797960000^2 & = & 1020304030201960400^2 \\
& & (4.980)
\end{array}
\qquad
\begin{array}{lll}
0023856^2 + 1976000^2 & = & 1976144^2 \\
10200023856^2 + 199576000^2 & = & 10201976144^2 \\
102030200023856^2 + 19959576000^2 & = & 102030201976144^2 \\
1020304030200023856^2 + 1995959576000^2 & = & 1020304030201976144^2 \\
& & (4.988)
\end{array}$$

$$\begin{array}{lll}
0037639^2 + 1962000^2 & = & 1962361^2 \\
10200037639^2 + 198162000^2 & = & 10201962361^2 \\
102030200037639^2 + 19818162000^2 & = & 102030201962361^2 \\
1020304030200037639^2 + 1981818162000^2 & = & 1020304030201962361^2 \\
& & (4.981)
\end{array}
\qquad
\begin{array}{lll}
0021879^2 + 1978000^2 & = & 1978121^2 \\
10200021879^2 + 199778000^2 & = & 10201978121^2 \\
102030200021879^2 + 19979778000^2 & = & 102030201978121^2 \\
1020304030200021879^2 + 1997979778000^2 & = & 1020304030201978121^2 \\
& & (4.989)
\end{array}$$

$$\begin{array}{lll}
0035676^2 + 1964000^2 & = & 1964324^2 \\
10200035676^2 + 198364000^2 & = & 10201964324^2 \\
102030200035676^2 + 19838364000^2 & = & 102030201964324^2 \\
1020304030200035676^2 + 1983838364000^2 & = & 1020304030201964324^2 \\
& & (4.982)
\end{array}
\qquad
\begin{array}{lll}
0019900^2 + 1980000^2 & = & 1980100^2 \\
10200019900^2 + 199980000^2 & = & 10201980100^2 \\
102030200019900^2 + 19999980000^2 & = & 102030201980100^2 \\
1020304030200019900^2 + 1999999980000^2 & = & 1020304030201980100^2 \\
& & (4.990)
\end{array}$$

$$\begin{array}{lll}
0033711^2 + 1966000^2 & = & 1966289^2 \\
10200033711^2 + 198566000^2 & = & 10201966289^2 \\
102030200033711^2 + 19858566000^2 & = & 102030201966289^2 \\
1020304030200033711^2 + 1985858566000^2 & = & 1020304030201966289^2 \\
& & (4.983)
\end{array}
\qquad
\begin{array}{lll}
0017919^2 + 1982000^2 & = & 1982081^2 \\
10200017919^2 + 200182000^2 & = & 10201982081^2 \\
102030200017919^2 + 20020182000^2 & = & 102030201982081^2 \\
1020304030200017919^2 + 2002020182000^2 & = & 1020304030201982081^2 \\
& & (4.991)
\end{array}$$

$$\begin{array}{lll}
0031744^2 + 1968000^2 & = & 1968256^2 \\
10200031744^2 + 198768000^2 & = & 10201968256^2 \\
102030200031744^2 + 19878768000^2 & = & 102030201968256^2 \\
1020304030200031744^2 + 1987878768000^2 & = & 1020304030201968256^2 \\
& & (4.984)
\end{array}
\qquad
\begin{array}{lll}
0015936^2 + 1984000^2 & = & 1984064^2 \\
10200015936^2 + 200384000^2 & = & 10201984064^2 \\
102030200015936^2 + 20040384000^2 & = & 102030201984064^2 \\
1020304030200015936^2 + 2004040384000^2 & = & 1020304030201984064^2 \\
& & (4.992)
\end{array}$$

$$\begin{array}{lll}
0029775^2 + 1970000^2 & = & 1970225^2 \\
10200029775^2 + 198970000^2 & = & 10201970225^2 \\
102030200029775^2 + 19898970000^2 & = & 102030201970225^2 \\
1020304030200029775^2 + 1989898970000^2 & = & 1020304030201970225^2 \\
& & (4.985)
\end{array}
\qquad
\begin{array}{lll}
0013951^2 + 1986000^2 & = & 1986049^2 \\
10200013951^2 + 200586000^2 & = & 10201986049^2 \\
102030200013951^2 + 20060586000^2 & = & 102030201986049^2 \\
1020304030200013951^2 + 2006060586000^2 & = & 1020304030201986049^2 \\
& & (4.993)
\end{array}$$

$$\begin{array}{lll}
0027804^2 + 1972000^2 & = & 1972196^2 \\
10200027804^2 + 199172000^2 & = & 10201972196^2 \\
102030200027804^2 + 19919172000^2 & = & 102030201972196^2 \\
1020304030200027804^2 + 1991919172000^2 & = & 1020304030201972196^2 \\
& & (4.986)
\end{array}
\qquad
\begin{array}{lll}
0011964^2 + 1988000^2 & = & 1988036^2 \\
10200011964^2 + 200788000^2 & = & 10201988036^2 \\
102030200011964^2 + 20080788000^2 & = & 102030201988036^2 \\
1020304030200011964^2 + 2008080788000^2 & = & 1020304030201988036^2 \\
& & (4.994)
\end{array}$$

$$\begin{array}{lll}
0025831^2 + 1974000^2 & = & 1974169^2 \\
10200025831^2 + 199374000^2 & = & 10201974169^2 \\
102030200025831^2 + 19939374000^2 & = & 102030201974169^2 \\
1020304030200025831^2 + 1993939374000^2 & = & 1020304030201974169^2 \\
& & (4.987)
\end{array}
\qquad
\begin{array}{lll}
009975^2 + 1990000^2 & = & 1990025^2 \\
10200009975^2 + 200990000^2 & = & 10201990025^2 \\
102030200009975^2 + 20100990000^2 & = & 102030201990025^2 \\
1020304030200009975^2 + 2010100990000^2 & = & 1020304030201990025^2 \\
& & (4.995)
\end{array}$$



$007984^2 + 1992000^2 = 1992016^2$	$003996^2 + 1996000^2 = 1996004^2$	
$10200007984^2 + 201192000^2 = 10201992016^2$	$10200003996^2 + 201596000^2 = 10201996004^2$	
$102030200007984^2 + 20121192000^2 = 102030201992016^2$	$102030200003996^2 + 20161596000^2 = 102030201996004^2$	
$1020304030200007984^2 + 2012121192000^2 = 1020304030201992016^2$ (4.996)	$1020304030200003996^2 + 2016161596000^2 = 1020304030201996004^2$ (4.998)	
$005991^2 + 1994000^2 = 1994009^2$	$001999^2 + 1998000^2 = 1998001^2$	
$10200005991^2 + 201394000^2 = 10201994009^2$	$10200001999^2 + 201798000^2 = 10201998001^2$	
$102030200005991^2 + 20141394000^2 = 102030201994009^2$	$102030200001999^2 + 20181798000^2 = 102030201998001^2$	
$1020304030200005991^2 + 2014141394000^2 = 1020304030201994009^2$ (4.997)	$1020304030200001999^2 + 2018181798000^2 = 1020304030201998001^2$ (4.999)	

Based on above 999 patterns, below are some remarks:

**Remark 3.** (i) The first line of first pattern (4.1) is the third line as given in pattern (1.2), i.e.,

$$999999^2 + 2000^2 = 1000001^2.$$

(ii) From the results appearing in subsections 4.1, 4.2, 4.3 ..., 4.9 4.10, it is interesting to observe that the last six digits in each case forms perfect square. See below:

Example (4.1)	⇒ 000001 = 1 <sup>2</sup>
Example (4.2)	⇒ 000004 = 2 <sup>2</sup>
Example (4.3)	⇒ 000009 = 3 <sup>2</sup>
Example (4.4)	⇒ 000016 = 4 <sup>2</sup>
...	...
...	...
Example (4.997)	⇒ 994009 = 997 <sup>2</sup>
Example (4.998)	⇒ 996004 = 998 <sup>2</sup>
Example (4.999)	⇒ 998001 = 999 <sup>2</sup> .

(iii) The sum of the last six digits of first and third members of each line is same, i.e.,

Example (4.1)	⇒ 999999 + 000001 = 1000000
Example (4.2)	⇒ 999996 + 000004 = 1000000
Example (4.3)	⇒ 999991 + 000009 = 1000000
Example (4.4)	⇒ 999984 + 000016 = 1000000
...	...
...	...
Example (4.997)	⇒ 005991 + 994009 = 1000000
Example (4.998)	⇒ 003996 + 996004 = 1000000
Example (4.999)	⇒ 001999 + 998001 = 1000000.

(iv) In many cases, the second term in first line is out of pattern, but the continuations is well patterned. From  $n=20$  to 999, we have written only first four lines. The rest 5 lines follows on similar way as of  $n=1$  to 19 given in subsection 4.1.

More studies on **palindromic-type pandigital patterns** and **general Pythagorean patterns** can be seen in author's work [5, 6, 7, 8]. Connections of Pythagorean triples with magic squares refer [3, 4, 9].

## References

- [1] R. KNOTT, Pythagorean Right-Angled Triangles, <http://www.maths.surrey.ac.uk/hosted-sites/R.Knott/Pythag/pythag.html>.
  - [2] Pythagorean triple - Wikipedia, <https://goo.gl/Zwu7sC>
  - [3] I.J. TANEJA, Magic Squares with Perfect Square Number Sums, Research Report Collection, 20(2017), Article 11, pp.1-24, <http://rgmia.org/papers/v20/v20a11.pdf>.
  - [4] I.J. TANEJA, Pythagorean Triples and Perfect Square Sum Magic Squares, RGMIA Research Report Collection, 20(2017), Art. 128, pp. 1-22, <http://rgmia.org/papers/v20/v20a128.pdf>,
  - [5] I.J. TANEJA, Palindromic-Type Pandigital Patterns in Pythagorean Triples, RGMIA Research Report Collection, 21(2018), Art 76, pp. 1-11. <http://rgmia.org/papers/v21/v21a76.pdf>
  - [6] I.J. TANEJA, Patterns in Pythagorean Triples Using Single Variable Procedures, RGMIA Research Report Collection, 21(2018), pp. 1-40, <http://rgmia.org/v21.php>
  - [7] I.J. TANEJA, Patterns in Pythagorean Triples Using Double Variable Procedures, RGMIA Research Report Collection, 21(2018), pp. 1-94, <http://rgmia.org/v21.php>
  - [8] I.J. TANEJA, Palindromic-Type Pandigital Patterns in Pythagorean Triples - I, RGMIA Research Report Collection, 21(2018), <http://rgmia.org/v21.php>
  - [9] I.J. TANEJA, Generating Pythagorean Triples with Applications to Magic Squares and Palindromic-Type Pandigital Patterns, RGMIA Research Report Collection, 21(2018), <http://rgmia.org/v21.php>
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