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Factorial-Power Selfie Expressions - I

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Abstract

This paper brings numbers in such a way that both sides of the expressions are with same digits. One side is digits with factorial and another side are with same digits with respetive powers. These types of expressions, we call as ***selfie expressions****. Three types of expressions are studied. One when digits involved are distinct, second when there is a repetition of digits but only with positive sign. The third type is with repetition of digits with positive and negative signs. In all the cases the digits follow the same order but the operations. Operations used are only addition, subtraction and multiplications.*

I N D E X

The work is divided in following sections and subsections:

1 Introduction

Before starting the work on **Semi-Selfie Numbers**, let us first see some work on **Crazy Representations** and **Selfie Numbers**. This is summarized in following two subsections with respective references [29].

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1.1 Crazy Representations

Here the number are written in such a way that, when you see, become very curious. Below are examples of two different ways of representations of natural numbers:

1.1.1 First Type

In this type the natural numbers are written in terms of 1 to 9 and 9 to 1 [4] in such a way that each digit is used once. See below some examples,

$$\begin{aligned}
999 &= 12\times 3\times (4+5)+(67+8)\times 9 && = 9+8+7+654+321.\\
2535 &= 1+2345+(6+7+8)\times 9 && = 9+87\times (6+5\times 4+3)+2+1.\\
2607 &= 123\times 4\times 5+6+(7+8)\times 9 && = 987+6\times 54\times (3+2)\times 1.\\
10958 &= 12\times 3+\sqrt{4}+5!\times (67+8\times \sqrt{9}) && = (9+8\times 7\times 65+4)\times 3-2+1.\\
11807 &= 1\times 234\times (5+6\times 7)+89 && = -9+8+7\times (6+5)\times (4\times 3)^2\times 1.
\end{aligned}$$

1.1.2 Second Type

Here, the natural numbers are written in such a way that both bases and powers are of same digits, but not necessarily bases and powers are of same digits [12]. See below some examples:

$$\begin{aligned}
666 &:= -2^5+3^2+4^3+5^4.\\
786 &:= -1^4+3^6+4^3-6^1.\\
9711 &:= 1^3+2^4+3^8+4^2+5^5-8^1.\\
9777 &:= 1^9+2^1+4^7-7^2-9^4.\\
11110 &:= 1^1+2^2+3^9-5^6+6^5-9^3.\\
11111 &:= -1^1+2^7+3^8-4^2+7^3+8^4.
\end{aligned}$$

1.1.3 Third Type

Based on second type still we can write natural numbers in a sequential way with uniform representations. Instead working with unequal strings as of previous section, here we worked with equal string using the digits 0 to 9, i.e., using all the 10 digits, {0,1,2,3,4,5,6,7,8,9}. The results obtained are symmetric, i.e., writing in 0 to 9 or 9 to 0, the resulting number is same. See some examples below,

$$\begin{aligned}
11080 &:= 0^8+1^9+2^7+3^6+4^2+5^5+6^0+7^1+8^3+9^4.\\
11081 &:= 0^8-1^9+2^6+3^7+4^4+5^1+6^5+7^0+8^2+9^3.\\
11082 &:= 0^8+1^9+2^6+3^7+4^1+5^4+6^5+7^3+8^0+9^2.\\
11083 &:= 0^8+1^9+2^6+3^7+4^4+5^1+6^5+7^0+8^2+9^3.\\
11084 &:= 0^7+1^9+2^8+3^6+4^1+5^5+6^0+7^3+8^2+9^4.\\
11085 &:= 0^8+1^9+2^6+3^7+4^4+5^0+6^5+7^1+8^2+9^3.\\
11086 &:= 0^7+1^9+2^8+3^6+4^0+5^5+6^1+7^3+8^2+9^4.\\
11087 &:= 0^6+1^9-2^8+3^7+4^2+5^4+6^5+7^0+8^1+9^3.
\end{aligned}$$

For more details refer author's work written as a summary of other works [22].

1.2 Selife Numbers

Recently, author studied different ways of expressing numbers in such a way that both sides are with same digits. One side is with number, and another side is an expression formed by same digits with some operations. These types of numbers we call **selfie numbers**. Some times they are called as **wild narcissistic numbers**. These numbers are represented by their own digits by use of certain operations. Subsections below give different ways of writing **selfie numbers**.

1.2.1 Selfie Numbers with Factorial and Square-Root

This subsection brings selfie numbers with use of factorial and/or square-root. See below some examples:

$$\begin{aligned}
936 &:= (\sqrt{9})!^3 + 6! && = 6! + (3!)^{\sqrt{9}}.\\
1296 &:= \sqrt{(1+2)!^9/6} && = 6^{(\sqrt{9}+2-1)}.\\
2896 &:= 2 \times (8 + (\sqrt{9})!! + 6!) && = (6! + (\sqrt{9})!! + 8) \times 2.\\
331779 &:= 3 + (31-7)^{\sqrt{7+9}} && = \sqrt{9} + (7 \times 7 - 1)^3 \times 3.\\
342995 &:= (3^4 - 2 - 9)^{\sqrt{9}} - 5 && = -5 + (-9 + 9^2 - \sqrt{4})^3.\\
759375 &:= (-7 + 59 - 37)^5 && = (5 + 7 + 3)^{\sqrt{9}-5+7}.\\
759381 &:= 7 + (5 \times \sqrt{9})^{-3+8} - 1 && = -1 + (8 \times 3 - 9)^5 + 7.
\end{aligned}$$

Examples given above are with **factorial** and **square-root** [27, 28]. First column numbers are in **digit's order** and second columns are in **reverse order of digits**. For details refer author's work [5, 6, 7, 8, 9, 10]. Still, one can have interesting results just with **factorial** [10]. See below:

$$\begin{aligned}
1463 &= -1! + 4! + 6! + 3!!.\\
10077 &= -1! - 0! - 0! + 7! + 7!.\\
40585 &= 4! + 0! + 5! + 8! + 5!.\\
80518 &= 8! - 0! - 5! - 1! + 8!.\\
317489 &= -3! - 1! - 7! - 4! - 8! + 9!.\\
352797 &= -3! + 5 - 2! - 7! + 9! - 7!.\\
357592 &= -3! - 5! - 7! - 5! + 9! - 2!.\\
357941 &= 3! + 5! - 7! + 9! - 4! - 1!.
\end{aligned}$$

$$\begin{aligned}
361469 &= 3! - 6! - 1! + 4! - 6! + 9!.\\
364292 &= 3!! + 6! - 4! - 2! + 9! - 2!.\\
397584 &= -3!! + 9! - 7! + 5! + 8! + 4!.\\
398173 &= 3! + 9! + 8! + 1! - 7! + 3!.\\
408937 &= -4! + 0! + 8! + 9! + 3!! + 7!.\\
715799 &= -7! - 1! + 5! - 7! + 9! + 9!.\\
720599 &= -7! - 2! + 0! - 5! + 9! + 9!.
\end{aligned}$$

$$\begin{aligned}
145 &= 1! + 4! + 5!.\\
733 &= 7 + 3!! + 3!.\\
5177 &= 5! + 17 + 7!.
\end{aligned}$$

$$\begin{aligned}
363239 &= 36 + 323 + 9!.\\
363269 &= 363 + 26 + 9!.\\
403199 &= 40319 + 9!.
\end{aligned}$$

1.2.2 Fibonacci Sequence and Selfie Numbers

The examples given in subsection 1.2.1 are with **factorial** and **square-root**. Still, one can have similar kind of results using **Fibonacci sequence** values [23, 24, 25]. See below:

$$235 = 2 + F(F(F(3) + 5)).$$
$$256 = 2^5 \times F(6).$$
$$4427 = (F(4) + 4^2) \times F(F(7)).$$
$$46493 = F(4 \times 6) + (-4 + 9)^3.$$
$$63 = 3 \times F(F(6)).$$
$$882 = 2 \times F(8) \times F(8).$$
$$1631 = F(13) \times (6 + 1).$$
$$54128 = 8 \times (F(2) + F(1 \times 4 \times 5)).$$

First column values are in **digit's order** and the second columns values are in **reverse order of digits**.

1.2.3 Binomial Coefficients and Selfie Numbers

The examples given in subsection 1.2.2 are with **Fibonacci sequence** values. Still, one can have similar kind of examples, using **Binomial coefficients** [34]. See below some examples,

$$6435 := C(C(6,\ 4),\ 3 + 5) \quad = C(5 \times 3,\ \sqrt{4} + 6).$$
$$15504 := C(15 + 5,\ 0! + 4) \quad = C(4 \times 05,\ 5 \times 1).$$
$$42504 := C(4!,\ \sqrt{2 \times 50/4}) \quad = C(4!,\ -05 + 24).$$
$$54264 := C(5 + 4^2,\ C(6,\ 4)) \quad = C(4! - 6/2,\ (\sqrt{4 + 5})!).$$
$$74613 := C(7 \times 4 - 6,\ 1 \times 3!) \quad = C(3! + 16,\ (-4 + 7)!).$$

$$2650 := C(-1 + 26,\ 5 - 0!).$$
$$12870 := C(1 \times 2 \times 8,\ 7 + 0!).$$
$$14950 := C(-1 + 4! + \sqrt{9},\ 5 - 0!).$$
$$18564 := C(18,\ (5 - 6 + 4)!).$$
$$19448 := C(19 - \sqrt{4},\ \sqrt{4} + 8).$$
$$26334 := C(2 + C(6,\ 3),\ 3 + \sqrt{4}).$$
$$43758 := C(4! - 3!,\ 7 - 5 + 8).$$
$$53130 := C(5^{3-1},\ 3! - 0!).$$
$$28 := C(8,\ 2).$$
$$792 := C(2 \times (\sqrt{9})!,\ 7).$$
$$924 := C(4!/2,\ (\sqrt{9})!).$$
$$2024 := C(4!,\ 2 + (0 \times 2)!).$$
$$4845 := C(5 \times 4,\ 8 - 4).$$
$$00378 := C(C(8,\ \sqrt{7 - 3}),\ 0! + 0!).$$
$$00792 := C(2 \times (\sqrt{9})!,\ 7 - 0! - 0!).$$
$$00924 := C(4!/2,\ \sqrt{9} \times (0! + 0!)).$$

Above numbers are in **digit's order**, **reverse order of digits** and in **both ways**. For more details refer [34].

1.2.4 Flexible Power Selfie Numbers

Below are examples of **selfie numbers**in such a way that where powers and bases are with same digits, but with different permutations [11, 14, 15, 16]:

$$23 = -2^2 + 3^3.$$
$$1654 = -1^6 + 6^1 + 5^4 + 4^5.$$
$$3435 = 3^3 + 4^4 + 3^3 + 5^5.$$
$$4355 = 4^5 + 3^4 + 5^3 + 5^5.$$
$$39339 = -3^3 + 9^3 + 3^9 + 3^9 - 9^3.$$
$$46360 = 4^0 + 6^6 - 3^4 - 6^3 + 0^6.$$
$$397612 = 3^2 + 9^1 + 7^6 + 6^7 + 1^9 + 2^3.$$
$$423858 = 4^3 + 2^8 + 3^4 + 8^2 + 5^8 + 8^5.$$
$$637395 = 6^5 + 3^3 + 7^3 + 3^9 + 9^6 + 5^7.$$
$$758014 = 7^7 + 5^1 + 8^0 + 0^5 + 1^4 - 4^8.$$
$$778530 = 7^7 + 7^3 + 8^5 - 5^7 + 3^0 + 0^8.$$
$$804637 = 8^0 + 0^4 - 4^8 + 6^6 - 3^3 + 7^7.$$

1.2.5 Selfie Fraction

Selfie fractions are formed in such a way that numerator and denominator are with same digits. One side is number and another side with same digits with basic operations [17, 18, 19]. See below some examples:

$$\frac{182}{6734} := \frac{18+2}{6+734}. \qquad \frac{4980}{5312} := \frac{4-9+80}{5\times(3+1)^2}.$$

$$\frac{416}{728} := \frac{4\times 16}{7\times 2\times 8}. \qquad \frac{3249}{5168} := \frac{(3+2^4)\times 9}{(5-1)\times 68}.$$

Still, one can have **equivalent selfie fractions** with same properties [20, 21]. See examples below:

$$\frac{284}{639} := \frac{2\times 8+4}{6+39} = \frac{28+4}{6\times(3+9)}.$$

$$\frac{302}{8154} := \frac{30\times 2}{81\times 5\times 4} = \frac{3+02}{81+54} = \frac{3-02}{81-54}.$$

$$\frac{73842}{90516} := \frac{7-3\times(8-4^2)}{9\times 05-1-6} = \frac{7\times(3+8)+4^2}{90+(5-1)\times 6} = \frac{738+4+2}{905+1+6}.$$

1.2.6 Narcissistic-Type Selfie Numbers

In case of **narcissistic numbers**, the powers are always fixed, for example $153 = 1^3+5^3+3^3$, but still, one can have numbers with flexible power and also with positive and negative signs. This we call as **narcissistic-type selfie numbers** [13]. See below few examples,

$$24 = 2^3+4^2. \qquad 2352 = 2^3+3^7+5^3+2^5.$$
$$48 = -4^2+8^2. \qquad 2374 = -2^1-3^2+7^4-4^2.$$
$$267 = 2^1+6^3+7^2. \qquad 10693 = 1^1+0^1+6^5+9^3+3^7.$$
$$2345 = 2^5+3^7+4^0+5^3. \qquad 10846 = -1^1-0^0+8^4-4^5+6^5.$$

These numbers are different from the one given in subsection 1.2.4. In subsection 1.2.4, the powers and bases are with same digits, while, here the powers don't have any relations with bases.

1.2.7 Narcissistic-Type Selfie Numbers with Division

Following same idea of above subsection 1.2.6 one can have **narcissistic-type selfie numbers with division** [13]. See examples below. These are divided in two types. The first column is with fixed powers and second column with variable powers:

$$2464 = \frac{2^5+4^5+6^5+4^5}{2^0+4^0+6^0+4^0}. \qquad 353 = \frac{-3^5-5^2+3^9}{3^1+5^2+3^3}.$$

$$4714 = \frac{4^5+7^5+1^5+4^5}{4^0+7^0+1^0+4^0}. \qquad 1337 = \frac{1^0+3^1+3^1+7^6}{-1^0+3^0+3^4+7^1}.$$

$$5247 = \frac{5^5+2^5+4^5+7^5}{5^0+2^0+4^0+7^0}. \qquad 10954 = \frac{-1^0-0^0+9^3+5^2+4^9}{1^0+0^0+9^0+5^1+4^2}.$$

$$8200 = \frac{8^5+2^5+0^5+0^5}{8^0+2^0+0^0+0^0}. \qquad 10958 = \frac{-1^0+0^0+9^2+5^2+8^5}{-1^0+0^0+9^0+5^0+8^0}.$$

It is understood that $a^0 := 0,\ a \neq 0$ and $0^0 := 1$.

1.2.8 Semi-Selfie Numbers

Semi-selfie numbers are very much similar to selfie numbers. The only difference is that not all the digits are same on both sides. Below are examples of two types of **semi-selfie numbers**, where the digits are same on both sides except powers.

- **First Type**

$$2025 = (20+25)^2. \qquad 494209 = (494+209)^2.$$
$$3025 = (30+25)^2. \qquad 1656369 = (1656-369)^2.$$
$$314432 = (31-4+43-2)^3. \qquad 1860496 = (1860-496)^2.$$
$$893025 = (8+930+2+5)^2. \qquad 4941729 = (494+1729)^2.$$

For detailed study refer Taneja [33]. These numbers are extensions of the one studied by Madachy [3], p.167 - 170. Also see Heinz [1]. Madachy's work is only with single digit and positive sign.

- **Second Type**

This type is little different from previous one. Here the other side is formed by two multiplicative expressions, where the first one is the sum of digits and second is with positive negative signs with power. See below examples,

$$1 := 1 \times 1^2. \qquad 803 := (8+0+3) \times (8^2+0^2+3^2).$$
$$133 := (1+3+3) \times (1^2+3^2+3^2). \qquad := (8+0+3) \times (8^2-0^2+3^2).$$
$$135 := (1+3+5) \times (-1^2-3^2+5^2). \qquad 912 := (9+1+2) \times (9^2-1^2-2^2).$$
$$153 := (1+5+3) \times (1^2+5^2-3^2). \qquad 1148 := (1+1+4+8) \times (1^2+1^2+4^2+8^2).$$
$$225 := (2+2+5) \times (2^2-2^2+5^2). \qquad 1547 := (1+5+4+7) \times (1^2+5^2+4^2+7^2).$$
$$315 := (3+1+5) \times (3^2+1^2+5^2). \qquad 2196 := (2+1+9+6) \times (2^2+1^2+9^2+6^2).$$
$$552 := (5+5+2) \times (5^2+5^2-2^2).$$

In this case, we have very few examples. The numbers with positive signs: 1, 133, 315, 803, 1148, 1547 and 2196 can be seen in [1].

2 Selfie Expressions

This category is very much similar to *selfie numbers*, but the difference is that instead of numbers on one side, there are expressions on both sides, i.e., **same digits equality expressions**. We may call it as **selfie expressions**. Below are two different ways of expressing equalities with same digits on both sides:

$$abcd... \times efgh... = cbad... \times gfhe..\ \ \forall a,b,c,d,e,... \in \mathrm{N}_+. \tag{1}$$

$$a^b + c^d + ... = ab + cd + ...,\ \ \forall a,b,c,d,.. \in \mathrm{N}. \tag{2}$$

2.1 Multiplication

Some examples of expression (1) are given below. These are written in such a way that on both sides of the expressions in each block separated by multiplication are with same digits.

$$2017 \times 3404 = 1702 \times 4034 \qquad 1729 \times 4358 = 2179 \times 3458.$$
$$2017 \times 6808 = 1702 \times 8068. \qquad 1729 \times 4732 = 2197 \times 3724.$$
$$1729 \times 3584 = 1792 \times 3458. \qquad 1729 \times 5438 = 2719 \times 3458.$$
$$1729 \times 3854 = 1927 \times 3458. \qquad 1729 \times 5781 = 1927 \times 5187.$$

More details can be seen in author's work [34]. Few examples can be seen at [2].

2.2 Power and Addition

Following the idea of expressions (2) the author wrote the numbers **2017** [30] and **1729** [31] as:

$$\begin{aligned} 2017 &:= 4^4 + 41^2 + 77^0 + 79^1 && = 44 + 412 + 770 + 791. \\ &:= 1^4 + 44^2 + 77^0 + 79^1 && = 14 + 442 + 770 + 791. \\ &:= 2^4 + 2^8 + 4^2 + 12^3 + 180^0 && = 24 + 28 + 42 + 123 + 1800. \\ &:= 1^1 + 3^6 + 5^4 + 5^4 + 6^2 + 180^0 && = 11 + 36 + 54 + 54 + 62 + 1800. \end{aligned}$$

$$\begin{aligned} 1729 &:= 2^7 + 40^2 + 130^0 && = 27 + 402 + 1300. \\ &:= 2^6 + 40^2 + 64^1 + 66^0 && = 26 + 402 + 641 + 660. \\ &:= 1^6 + 41^2 + 46^1 + 84^0 && = 16 + 412 + 461 + 840. \end{aligned}$$

Below are more examples,

$$81 := 2^3 + 2^6 + 3^2 = 23 + 26 + 32. \qquad 246 := 5^2 + 5^2 + 14^2 = 52 + 52 + 142.$$
$$99 := 2^3 + 3^3 + 4^3 = 23 + 33 + 43. \qquad 266 := 4^2 + 9^2 + 13^2 = 42 + 92 + 132.$$
$$121 := 2^3 + 2^6 + 7^2 = 23 + 26 + 72. \qquad 286 := 6^2 + 9^2 + 13^2 = 62 + 92 + 132.$$
$$170 := 2^6 + 5^2 + 9^2 = 26 + 52 + 92. \qquad 306 := 8^2 + 11^2 + 11^2 = 82 + 112 + 112.$$
$$246 := 2^2 + 11^2 + 11^2 = 22 + 112 + 112. \qquad 306 := 9^2 + 9^2 + 12^2 = 92 + 92 + 122.$$

In the above examples, the equality expressions are formed by three terms on both sides, while the numbers 2017 and 1729 are with **different terms expressions**. More detailed study can be seen at author's work [32, 33]. In these works, instead of using only positive sign, both positive and negative signs are used.

2.3 Factorial and Power

Let us consider following expression:

$$a! \times b! + (c! + d!) \times e! + ... = a^a + b^b - c^c \times (d^d - e^e) + ..., \ \ \forall a, b, c, d, e, ... \in \mathrm{N}_+, \text{ etc.} \quad (3)$$

The expressions (1), (2) and (3) are with same digits on both sides. The difference is that in the expression (3), where the sides are separated by **factorial** and **powers**, but the operations are in different ways. The order of digits on both sides are the same.

In the right side of the expression (3), the powers are of same digits as of bases. On the other side, the examples given in subsection 1.2.4, the power are the permutations of the same digits, but not necessarily same with each digit. This can be done with expression (3) too. In this case, we can write as

$$a! \times b! + (c! + d!) \times e! + ... = a^c + (b^d - c^a) \times d^e - e^b + ..., \ \ \forall a, b, c, d, e, ... \in \mathrm{N}_+, \text{ etc.} \quad (4)$$

The aim of this paper is to study extensively the expressions (3). While, the study of expression and (4) is done in second part of this work [36].

3 Factorial-Power Selfie Expressions

In this paper, our aim is to work with examples based on the structure given in (3) , where the expressions are separated by equality sign with **factorial** and **powers** on each side. The powers are the same as of bases. Moreover, the digits follow the same order on both sides. While, there is no rule on operations. The work is divided in three subsections. First with **different digits**, second with **repetition of digits but only with positive sign**. The third is with **positive and negative signs along with repetition of digits**.

3.1 Different Digits Equalities

As explained above, this subsection deals with examples of expression (3) with different digits.

$1 := 1! \quad = 1^1.$
$3 := 1! + 2! = -1^1 + 2^2.$

$144 := (2! - 1!) \times 3! \times 4! \quad = -2^2 \times (1^1 + 3^3) + 4^4.$
$147 := 1! + 2! + 3! \times 4! \quad = -1^1 - 2^2 \times 3^3 + 4^4.$
$148 := (1! + 4!) \times 3! - 2! \quad = 1^1 \times 4^4 - 3^3 \times 2^2.$
$152 := 2! + 3! \times (1! + 4!) \quad = 2^2 \times (-3^3 + 1^1) + 4^4.$
$286 := (-1! + 3! \times 4!) \times 2! = -1^1 + 3^3 + 4^4 + 2^2.$
$287 := -1! + 2! \times 3! \times 4! \quad = 1^1 \times 2^2 + 3^3 + 4^4.$
$288 := 1! \times 2! \times 3! \times 4! \quad = 1^1 + 2^2 + 3^3 + 4^4.$

$1872 := (3! \times 2! + 1!) \times (4! + 5!) \quad = 3^3 - (2^2 + 1^1) \times 4^4 + 5^5.$
$2074 := (-1! - 3! + 4!) \times (2! + 5!) = -1^1 \times 3^3 - 4^4 \times 2^2 + 5^5.$
$2124 := (3! - 4! \times 1!) \times (2! - 5!) \quad = 3^3 - (4^4 + 1^1) \times 2^2 + 5^5.$
$2734 := -1! \times 2! + (-3! + 5!) \times 4! = (-1^1 - 2^2) \times 3^3 + 5^5 - 4^4.$
$2760 := (-1! + 2! - 3! + 5!) \times 4! \quad = -1^1 - 2^2 \times 3^3 + 5^5 - 4^4.$

$2762 := 4! \times (1! - 3! + 5!) + 2! \quad = -4^4 + 1^1 + 5^5 - 3^3 \times 2^2.$
$2764 := 3! - 2! + (4! - 1!) \times 5! \quad = (3^3 - 2^2) \times 4^4 + 1^1 - 5^5.$
$2837 := -1! + (5! - 2!) \times 4! + 3! = -1^1 + 5^5 - 2^2 - 4^4 - 3^3.$

$2838 := (-1! \times 2! + 5!) \times 4! + 3! = -1^1 \times 2^2 + 5^5 - 4^4 - 3^3.$
$:= 4! \times (5! - 2!) + 3! \quad = -4^4 + 5^5 - 2^2 - 3^3.$

$2839 := 1! + 3! + 4! \times (5! - 2!) = 1^1 - 3^3 - 4^4 + 5^5 - 2^2.$
$2891 := -1! + 2! \times 3! + 4! \times 5! = -1^1 - 2^2 + 3^3 - 4^4 + 5^5.$
$2892 := 2! \times 3! + 4! \times 5! \quad = -2^2 + 3^3 - 4^4 + 5^5.$
$2893 := 1! + 2! \times 3! + 4! \times 5! \quad = 1^1 - 2^2 + 3^3 - 4^4 + 5^5.$
$2900 := (1! + 5!) \times 4! - 3! + 2! = 1^1 \times 5^5 - 4^4 + 3^3 + 2^2.$

$2976 := (-1! \times 2! + 3! + 5!) \times 4! = -1^1 + 2^2 \times 3^3 + 5^5 - 4^4.$
$2977 := 1! + (-2! + 3! + 5!) \times 4! = 1^1 \times 2^2 \times 3^3 + 5^5 - 4^4.$
$3004 := 3! - 2! + (1! + 4!) \times 5! \quad = 3^3 \times (2^2 + 1^1) - 4^4 + 5^5.$
$3246 := 3! + (2! + 1! + 4!) \times 5! \quad = -3^3 \times (2^2 + 1^1) + 4^4 + 5^5.$
$3300 := (5! + 3! \times 2!) \times (1! + 4!) = 5^5 - 3^3 \times (2^2 - 1^1) + 4^4.$

$3359 := -1! + (-2! + 3! + 4!) \times 5! \quad = 1^1 + 2^2 - 3^3 + 4^4 + 5^5.$
$3782 := (1! + 3! + 4!) \times (2! + 5!) \quad = -1^1 + 3^3 \times 4^4 - 2^2 - 5^5.$
$4104 := -(1! \times 2! + 3!) \times 5! + 4! + 7! = -1^1 + (2^2 \times 3^3 + 5^5) \times 4^4 - 7^7.$
$4105 := 1! - (2! + 3!) \times 5! + 4! + 7! \quad = ((1^1 \times 2^2) \times 3^3 + 5^5) \times 4^4 - 7^7.$
$4283 := -1! - 3! \times (5! + 2!) - 4! + 7! = (1^1 - 3^3 - 5^5) \times (2^2 + 4^4) + 7^7.$

$$5129 := 1! - 3! - 2! + 5! - 4! + 7! = ((1^1 + 3^3) \times 2^2 + 5^5) \times 4^4 - 7^7.$$
$$5592 := (-1! + 5! \times 2! - 3!) \times 4! = (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4.$$
$$5615 := -1! + 4! \times (-3! + 2! \times 5!) = (1^1 - 4^4) \times 3^3 + 2^2 \times 5^5.$$

$$7488 := (1! + 2!) \times (-4! + 5! + 6!) + 7! = (-1^1 - 2^2 + 4^4) \times 5^5 + 6^6 - 7^7.$$
$$7918 := -1! \times 2! + 4! \times 5! + 7! = (-1^1 - 2^2 - 4^4) \times 5^5 + 7^7.$$
$$8634 := (1! + 2!) \times 4! \times 5! - 3! = (1^1 - 2^2) \times (4^4 - 5^5) + 3^3.$$

$$17040 := (-1! \times 2! + 3! \times 4!) \times 5! = (1^1 + 2^2) \times (3^3 + 4^4 + 5^5).$$
$$22200 := (-1! + (2! + 3!) \times 4!) \times 5! - 6! = (1^1 - 2^2 + 3^3) \times (-4^4 + 5^5) - 6^6.$$
$$23520 := (1! + 3!) \times 5! \times (4! - 2!) + 7! = -1^1 \times 3^3 - 5^5 \times 4^4 + 2^2 + 7^7.$$
$$25920 := (1! \times 2! \times 3! + 4!) \times 6! = (1^1 - 2^2) \times 3^3 \times 4^4 + 6^6.$$

$$34416 := 4! \times (6! \times 2! - 1!) - 5! = 4^4 + 6^6 + 2^2 \times (1^1 - 5^5).$$
$$34440 := (-1! - 3! + 4! \times 2!) \times (5! + 6!) = 1^1 + 3^3 + 4^4 - 2^2 \times 5^5 + 6^6.$$
$$37466 := (1! + 3! \times 5! + 6!) \times (2! + 4!) = -1^1 + 3^3 \times 5^5 - 6^6 + 2^2 - 4^4.$$
$$39600 := (1! + 3! + 2! \times 4!) \times 6! = (1^1 + 3^3) \times (2^2 - 4^4) + 6^6.$$

$$40584 := (-1! + (3! + 5! + 6!) \times 2!) \times 4! = (1^1 + 3^3) \times 5^5 - 6^6 - 2^2 - 4^4.$$
$$42480 := (-1! - 2! \times (4! + 3!) + 5!) \times 6! = -1^1 \times 2^2 \times 4^4 - 3^3 - 5^5 + 6^6.$$
$$56880 := (1! - 2! \times 4! + 3! + 5!) \times 6! = (-1^1 + 2^2) \times (4^4 + 3^3 + 5^5) + 6^6.$$
$$86808 := (1! + 3!) \times 4! + 5! \times (2! + 6!) = (1^1 + 3^3 \times 4^4 + 5^5) \times 2^2 + 6^6.$$

$$103272 := (-1! \times 2! + 6!) \times 4! \times 3! - 5! = -1^1 + 2^2 \times (6^6 + 4^4) - 3^3 \times 5^5.$$
$$103273 := 1! - (2! - 6!) \times 4! \times 3! - 5! = 1^1 \times 2^2 \times (6^6 + 4^4) - 3^3 \times 5^5.$$
$$174228 := ((1! + 5!) \times 6! - 3!) \times 2! = (-1^1 - 5^5 + 6^6 + 3^3) \times 2^2.$$
$$198720 := 6! \times 3! \times (4! - 1!) \times 2! = (6^6 - 3^3 \times 4^4) \times (1^1 + 2^2).$$
$$673944 := -(1! + 2! - 5!) \times (6! + 7!) + 4! = (1^1 - 2^2) \times (5^5 + 6^6) + 7^7 - 4^4.$$

$$4752030 := 1! \times 3! + 5! \times (8! - 6!) + 4! = (1^1 - 3^3) \times 5^5 + 8^8 - 6^6 \times 4^4.$$
$$4846327 := 1! + 3! + 5! \times (4! + 8!) + 7! = (-1^1 + 3^3) \times 5^5 \times 4^4 - 8^8 + 7^7.$$
$$5183880 := (-1! + (3! + 4!) \times 2! \times 6!) \times 5! = (-1^1 + 3^3) \times (4^4 + 2^2 \times (6^6 + 5^5)).$$

3.2 Repeated Digits Equalities with Positive Sign

This subsection deals with examples of expression (3) with repetition of digits but with positive sign.

$$1 := 1! = 1^1.$$
$$2 := 1! + 1! = 1^1 + 1^1.$$
$$3 := 1! + 1! + 1! = 1^1 + 1^1 + 1^1.$$
$$4 := 1! + 1! + 2! = 1^1 \times 1^1 \times 2^2.$$
$$5 := 1! + 1! + 1! + 1! + 1! = 1^1 + 1^1 + 1^1 + 1^1 + 1^1.$$

$$6 := (1! + 1! + 1!) \times 2! \qquad = (1^1 + 1^1) \times 1^1 + 2^2.$$
$$7 := 1! + (1! + 1! + 1!) \times 2! = 1^1 + 1^1 + 1^1 \times 1^1 + 2^2.$$
$$8 := (1! + 1! + 1! + 1!) \times 2! = 1^1 + 1^1 + 1^1 + 1^1 + 2^2.$$
$$9 := (1! + 2!) \times (1! + 2!) \qquad = (1^1 + 2^2) \times 1^1 + 2^2.$$
$$10 := (1! + 1! + 1! + 2!) \times 2! = 1^1 + 1^1 \times 1^1 + 2^2 + 2^2.$$

$$11 := (1! + 1! + 1!) \times (1! + 2!) + 2! = 1^1 + 1^1 + 1^1 \times 1^1 + 2^2 + 2^2.$$
$$12 := (2! + 2!) \times (1! + 2!) \qquad = 2^2 + 2^2 \times 1^1 + 2^2.$$
$$13 := 1! + (2! + 2!) \times (1! + 2!) \qquad = 1^1 + 2^2 + 2^2 \times 1^1 + 2^2.$$
$$14 := ((1! + 2!) \times 2! + 1!) \times 2! \qquad = 1^1 + 2^2 + 2^2 + 1^1 + 2^2.$$
$$15 := (1! \times 1! + 2! + 2!) \times (1! + 2!) = 1^1 + 1^1 + 2^2 + 2^2 + 1^1 + 2^2.$$

$$16 := 2! \times 2! \times 2! \times 2! \qquad = 2^2 + 2^2 + 2^2 + 2^2.$$
$$17 := 1! + (2! + 2!) \times 2! \times 2! \qquad = 1^1 + 2^2 + 2^2 + 2^2 + 2^2.$$
$$18 := (1! + 1! + 2!) \times 2! \times 2! + 2! = 1^1 + 1^1 + 2^2 + 2^2 + 2^2 + 2^2.$$
$$20 := ((2! + 2!) \times 2! + 2!) \times 2! \qquad = 2^2 + 2^2 + 2^2 + 2^2 + 2^2.$$
$$24 := (1! + 2!) \times 2! \times 2! \times 2! \qquad = 1^1 \times 2^2 + 2^2 + 2^2 \times 2^2.$$

$$25 := 1! + (1! + 2!) \times 2! \times 2! \times 2! \qquad = 1^1 \times 1^1 + 2^2 + 2^2 + 2^2 \times 2^2.$$
$$26 := (1! + (1! + 2!) \times 2! \times 2!) \times 2! = 1^1 + 1^1 + 2^2 + 2^2 + 2^2 \times 2^2.$$
$$28 := (1! + (1! + 2!) \times 2!) \times 2! \times 2! = (1^1 + 1^1) \times 2^2 + 2^2 + 2^2 \times 2^2.$$
$$32 := (1! + 1! + 2!) \times 2! \times 2! \times 2! \qquad = (1^1 + 1^1 + 2^2) \times 2^2 + 2^2 + 2^2.$$
$$35 := (1! + 1! + 1! + 2!) \times (1! + 3!) = 1^1 + 1^1 + 1^1 + 2^2 + 1^1 + 3^3.$$

$$36 := (1! + 2!) \times 2! \times 3! \qquad = 1^1 + 2^2 + 2^2 + 3^3.$$
$$37 := 1! + (1! + 2!) \times 2! \times 3! \qquad = 1^1 + 1^1 + 2^2 + 2^2 + 3^3.$$
$$38 := 1! + 1! + (1! + 2!) \times 2! \times 3! = 1^1 + 1^1 + 1^1 + 2^2 + 2^2 + 3^3.$$
$$39 := (2! \times 3! + 1!) \times (1! + 2!) \qquad = 2^2 + 3^3 + (1^1 + 1^1) \times 2^2.$$
$$40 := ((1! + 2!) \times 3! + 2!) \times 2! \qquad = 1^1 + 2^2 + 3^3 + 2^2 + 2^2.$$

$$41 := 1! + (1! + 2! + 2!) \times (3! + 2!) \qquad = 1^1 + 1^1 + 2^2 + 2^2 + 3^3 + 2^2.$$
$$42 := (1! + (1! + 1! + 1!) \times 2!) \times 3! \qquad = (1^1 + 1^1 + 1^1) \times (1^1 + 2^2) + 3^3.$$
$$43 := 1! + (1! + (1! + 2!) \times 2!) \times 3! \qquad = (1^1 + 1^1 + 1^1) \times 2^2 + 2^2 + 3^3.$$
$$45 := (1! + (1! + 3!) \times 2!) \times (1! + 2!) = 1^1 + 1^1 + 3^3 + (2^2 \times 1^1) \times 2^2.$$
$$48 := (1! + 1! + 2!) \times 2! \times 3! \qquad = 1^1 + (1^1 + 2^2) \times 2^2 + 3^3.$$

$$49 := 1! \times 1! + (2! + 2!) \times 2! \times 3! \qquad = 1^1 + 1^1 + 2^2 + 2^2 \times 2^2 + 3^3.$$
$$51 := 1! + (1! + (2! + 2!) \times 3!) \times 2! = (1^1 \times 1^1 + 2^2) \times 2^2 + 3^3 + 2^2.$$
$$52 := (1! + 1! + 2!) \times (2! \times 3! + 1!) = (1^1 + 1^1 + 2^2) \times 2^2 + 3^3 + 1^1.$$
$$55 := 1! + (1! + (2! + 2!) \times 2!) \times 3! = (1^1 + 1^1 + 2^2) \times 2^2 + 2^2 + 3^3.$$
$$56 := (1! + 1! + 3!) \times (1! + 3!) \qquad = (1^1 + 1^1 + 3^3) \times 1^1 + 3^3.$$

$$57 := 1! + (1! + 1! + 3!) \times (1! + 3!) = (1^1 + 1^1 + 1^1 + 3^3) \times 1^1 + 3^3.$$
$$60 := (1! + 2! + 2!) \times 2! \times 3! = 1^1 + (2^2 + 2^2) \times 2^2 + 3^3.$$
$$61 := 1! + (1! + 1! + 2! + 3!) \times 3! = 1^1 + 1^1 + 1^1 + 2^2 + 3^3 + 3^3.$$
$$63 := (1! \times 1! + 2! + 3!) \times (1! + 3!) = (1^1 + 1^1) \times 2^2 + 3^3 + 1^1 + 3^3.$$
$$64 := (1! + 1! + 2!) \times 2! \times (2! + 3!) = 1^1 + (1^1 + 2^2 + 2^2) \times 2^2 + 3^3.$$

$$66 := (2! + 3!) \times (2! + 3!) + 2! = 2^2 + 3^3 + 2^2 + 3^3 + 2^2.$$
$$70 := (1! + 3!) \times (2! + 2! + 3!) = 1^1 \times 3^3 + 2^2 \times 2^2 + 3^3.$$
$$72 := (1! + 1! + 2! + 2! + 3!) \times 3! = 1^1 + 1^1 + 2^2 \times 2^2 + 3^3 + 3^3.$$
$$74 := 1! \times 2! + 2! \times 3! \times 3! = (1^1 + 2^2) \times 2^2 + 3^3 + 3^3.$$
$$78 := 1! + 1! + 2! \times (2! + 3! \times 3!) = (1^1 + 1^1 + 2^2) \times 2^2 + 3^3 + 3^3.$$

$$84 := (1! + 1! \times 1! + 3! + 3!) \times 3! = 1^1 + 1^1 + 1^1 + 3^3 + 3^3 + 3^3.$$
$$85 := 1! + (2! + 3! + 3!) \times 3! = 1^1 \times 2^2 + 3^3 + 3^3 + 3^3.$$
$$86 := 2! + (2! + 2! \times 3!) \times 3! = (2^2 + 2^2) \times 2^2 + 3^3 + 3^3.$$
$$87 := 1! + (1! + 3!) \times (3! + 3!) + 2! = 1^1 + 1^1 + 3^3 + 3^3 + 3^3 + 2^2.$$

$$89 := 1! + ((1! + 3!) \times 3! + 2!) \times 2! = (1^1 + 1^1) \times 3^3 + 3^3 + 2^2 + 2^2.$$
$$90 := (1! + 1! + 1! + 2! \times 3!) \times 3! = 1^1 + (1^1 + 1^1) \times (2^2 + 3^3) + 3^3.$$
$$91 := (1! \times 1! + 2! \times 3!) \times (1! + 3!) = (1^1 + 1^1) \times (2^2 + 3^3 + 1^1) + 3^3.$$
$$97 := 1! \times 1! + 2! \times (2! + 3!) \times 3! = (1^1 + 1^1) \times (2^2 + 2^2 + 3^3) + 3^3.$$

$$108 := (1! \times 3! + 3! + 3!) \times 3! = 1^1 \times 3^3 + 3^3 + 3^3 + 3^3.$$
$$109 := 1! + (3! + 3! + 3!) \times 3! = 1^1 + 3^3 + 3^3 + 3^3 + 3^3.$$
$$110 := 1! + 1! + (3! + 3! + 3!) \times 3! = 1^1 + 1^1 + 3^3 + 3^3 + 3^3 + 3^3.$$
$$111 := (1! + 1! + 1!) \times (1! + 3! \times 3!) = (1^1 + 1^1 + 1^1) \times (1^1 + 3^3) + 3^3.$$
$$112 := (1! + 1! + 3! + 3!) \times (2! + 3!) = (1^1 + 1^1) \times 3^3 + 3^3 + 2^2 + 3^3.$$

$$113 := 1! + (1! + 3!) \times 2! \times (2! + 3!) = (1^1 + 1^1) \times (3^3 + 2^2 \times 2^2) + 3^3.$$
$$114 := (1! + 1! + 3! \times 3!) \times (1! + 2!) = (1^1 + 1^1) \times (3^3 + 3^3 + 1^1) + 2^2.$$
$$120 := (1! + 1! + (1! + 2!) \times 3!) \times 3! = (1^1 + 1^1 + 1^1) \times (2^2 + 3^3) + 3^3.$$
$$144 := 1! \times 1! \times 3! \times 2! \times 2! \times 3! = 1^1 + (1^1 + 3^3) \times 2^2 + 2^2 + 3^3.$$
$$147 := 1! + (1! + 3! \times 2! \times 3!) \times 2! = (1^1 + 1^1 + 3^3) \times 2^2 + 3^3 + 2^2.$$

$$151 := 1! + (1! + (2! + 2!) \times 3!) \times 3! = 1^1 \times 1^1 \times 2^2 \times (2^2 + 3^3) + 3^3.$$
$$152 := (1! + 1! + 2!) \times (2! + 3! \times 3!) = 1^1 \times 1^1 + 2^2 \times (2^2 + 3^3) + 3^3.$$
$$156 := ((1! + 1! + 2!) \times 3! + 2!) \times 3! = 1^1 + (1^1 + 2^2 + 3^3) \times 2^2 + 3^3.$$
$$168 := (1! + 1! + 2!) \times 3! \times (1! + 3!) = 1^1 + (1^1 + 2^2) \times (3^3 + 1^1) + 3^3.$$
$$170 := (1! + (1! + 3!) \times 2! \times 3!) \times 2! = (1^1 + 1^1) \times (3^3 + 2^2) + 3^3 \times 2^2.$$

$$216 := (1! + 2!) \times 3! \times 2! \times 3! = (1^1 \times 2^2) \times 3^3 + 2^2 \times 3^3.$$
$$217 := 1! + (1! + 2!) \times 3! \times 2! \times 3! = 1^1 \times 1^1 + 2^2 \times 3^3 + 2^2 \times 3^3.$$
$$222 := (1! + (1! + 2!) \times 2! \times 3!) \times 3! = 1^1 + 1^1 + 2^2 + 2^2 \times (3^3 + 3^3).$$
$$288 := (4! \times 2!) \times (2! + 2! + 2!) = 4^4 + 2^2 \times 2^2 + 2^2 \times 2^2.$$
$$289 := 1! \times 1! + 2! \times 3! \times 4! = 1^1 + 1^1 + 2^2 + 3^3 + 4^4.$$

$$291 := 1! + 2! + 2! \times 3! \times 4! = 1^1 \times 2^2 + 2^2 + 3^3 + 4^4.$$
$$292 := (1! \times 2! + 3! \times 4!) \times 2! = 1^1 + 2^2 + 3^3 + 4^4 + 2^2.$$
$$293 := 1! \times 1! + 2! \times (2! + 3! \times 4!) = 1^1 + 1^1 + 2^2 + 2^2 + 3^3 + 4^4.$$
$$295 := 1! + (1! + 2! + 3! \times 4!) \times 2! = (1^1 + 1^1) \times 2^2 + 3^3 + 4^4 + 2^2.$$
$$300 := (1! \times 2! + 2! \times 4!) \times 3! = 1^1 + 2^2 \times 2^2 + 4^4 + 3^3.$$

$$301 := 1! \times 1! + 3! \times (2! + 2! \times 4!) = 1^1 + 1^1 + 3^3 + 2^2 \times 2^2 + 4^4.$$
$$307 := 1! + (1! + 2! + 2! \times 4!) \times 3! = (1^1 + 1^1 + 2^2) \times 2^2 + 4^4 + 3^3.$$
$$312 := (1! \times 1! + 3! + 3!) \times 4! = 1^1 + 1^1 + 3^3 + 3^3 + 4^4.$$
$$313 := 1! \times 1! + (3! + 3! + 1!) \times 4! = 1^1 + 1^1 + 3^3 + 3^3 + 1^1 + 4^4.$$
$$314 := (1! + 3! + 3!) \times 4! + 2! = 1^1 \times 3^3 + 3^3 + 4^4 + 2^2.$$

$$315 := 1! + (1! + 3! + 3!) \times 4! + 2! = 1^1 \times 1^1 + 3^3 + 3^3 + 4^4 + 2^2.$$
$$318 := 2! \times (2! + 4!) \times 3! + 3! = 2^2 + 2^2 + 4^4 + 3^3 + 3^3.$$
$$324 := (1! + 2! + 3!) \times 3! \times 3! = 1^1 \times 2^2 \times (3^3 + 3^3 + 3^3).$$
$$325 := 1! + (1! + 2! + 3!) \times 3! \times 3! = 1^1 \times 1^1 + 2^2 \times (3^3 + 3^3 + 3^3).$$
$$326 := 2! + (2! \times 4! + 3!) \times 3! = 2^2 \times 2^2 + 4^4 + 3^3 + 3^3.$$

$$336 := (1! + (1! + 2!) \times 2!) \times 2! \times 4! = (1^1 \times 1^1 + 2^2) \times 2^2 \times 2^2 + 4^4.$$
$$337 := 1! + (1! + 1! + 3! + 3!) \times 4! = (1^1 + 1^1) \times 1^1 \times 3^3 + 3^3 + 4^4.$$
$$338 := (1! + 1!) \times (1! + (1! + 3!) \times 4!) = 1^1 + (1^1 + 1^1 + 1^1) \times 3^3 + 4^4.$$
$$364 := (1! + 1! + 4!) \times (3! + 1!) \times 2! = 1^1 \times 1^1 \times 4^4 + 3^3 \times 1^1 \times 2^2.$$
$$384 := (2! + 2!) \times 2! \times 2! \times 4! = (2^2 + 2^2) \times 2^2 \times 2^2 + 4^4.$$

$$385 := 1! \times 1! + (3! + 2!) \times 2! \times 4! = 1^1 + (1^1 + 3^3 + 2^2) \times 2^2 + 4^4.$$
$$388 := (1! + 1!) \times (2! + (3! + 2!) \times 4!) = (1^1 + 1^1 + 2^2 + 3^3) \times 2^2 + 4^4.$$
$$391 := 1! + (1! + 3! + 3!) \times (3! + 4!) = (1^1 + 1^1) \times (3^3 + 3^3) + 3^3 + 4^4.$$
$$392 := (1! + 1! + 3!) \times (1! + 2! \times 4!) = 1^1 \times 1^1 + 3^3 \times (1^1 + 2^2) + 4^4.$$
$$432 := 1! \times 1! \times 3! \times 3! \times 3! \times 2! = ((1^1 + 1^1) \times 3^3 + 3^3 + 3^3) \times 2^2.$$

$$480 := (1! + 1!) \times (2! + 2! + 3!) \times 4! = (1^1 + 1^1) \times (2^2 + 2^2 \times 3^3) + 4^4.$$
$$504 := (1! + (1! + 2!) \times 3! + 2!) \times 4! = (1^1 + 1^1) \times 2^2 \times (3^3 + 2^2) + 4^4.$$
$$576 := (1! + 1! + 1!) \times (2! + 3!) \times 4! = (1^1 + 1^1) \times (1^1 + 2^2 + 3^3 + 4^4).$$
$$578 := (1! + 1! + 2!) \times 3! \times 4! + 2! = (1^1 + 1^1) \times (2^2 + 3^3 + 4^4) + 2^2.$$
$$580 := 2! \times (2! + (2! \times 3!) \times 4!) = (2^2 + 2^2 + 2^2) \times 3^3 + 4^4.$$

$582 := (1! \times 1! + (2! + 2!) \times 4!) \times 3! = (1^1 + 1^1) \times (2^2 + 2^2 + 4^4 + 3^3).$

$601 := 1! + (1! + 4!) \times 2! \times (3! + 3!) = (1^1 + 1^1) \times (4^4 + 2^2 + 3^3) + 3^3.$

$624 := (1! + 3! \times 2!) \times (4! + 4!) = (1^1 + 3^3) \times 2^2 + 4^4 + 4^4.$

$625 := 1! + (1! + 3! \times 2!) \times (4! + 4!) = 1^1 + (1^1 + 3^3) \times 2^2 + 4^4 + 4^4.$

$636 := 2! \times 3! + (2! + 4!) \times 4! = (2^2 + 3^3) \times 2^2 + 4^4 + 4^4.$

$648 := (1! \times 1! + 2!) \times 3! \times 3! \times 3! = (1^1 + 1^1) \times 2^2 \times (3^3 + 3^3 + 3^3).$

$696 := (1! + (1! + 3!) \times 2! \times 2!) \times 4! = (1^1 + 1^1 + 3^3 \times 2^2) \times 2^2 + 4^4.$

$720 := (1! + (1! + 3!) \times 2!) \times 2! \times 4! = (1^1 + 1^1 + 3^3) \times 2^2 \times 2^2 + 4^4.$

$728 := 2! + 3! + (3! + 4!) \times 4! = 2^2 \times (3^3 + 3^3) + 4^4 + 4^4.$

$864 := 2! \times 3! \times 3! \times (3! + 3!) = 2^2 \times 3^3 + 3^3 + 3^3 \times 3^3.$

$876 := (1! + 1! \times 1! + 3! \times 4!) \times 3! = (1^1 + 1^1 + 1^1) \times (3^3 + 4^4) + 3^3.$

$1014 := (1! \times 1! + 3!) \times 3! \times 4! + 3! = 1^1 + 1^1 + 3^3 \times 3^3 + 4^4 + 3^3.$

$1080 := (1! + (1! + 3!) \times 3! + 2!) \times 4! = 1^1 + 1^1 + 3^3 + 3^3 + 2^2 \times 4^4.$

$1093 := 1! + (1! + 3!) \times 3! \times (2! + 4!) = 1^1 \times 1^1 \times 3^3 \times (3^3 + 2^2) + 4^4.$

$1152 := (2! + 2!) \times 2! \times 3! \times 4! = 2^2 + 2^2 \times (2^2 + 3^3 + 4^4).$

$1159 := 1! + (1! + (2! + 3!) \times 4!) \times 3! = (1^1 \times 1^1) \times 2^2 \times (3^3 + 4^4) + 3^3.$

$1160 := (1! + 3! \times 4!) \times (2! + 3!) = 1^1 + (3^3 + 4^4) \times 2^2 + 3^3.$

$1161 := 1! + (1! + 3! \times 4!) \times (2! + 3!) = 1^1 + 1^1 + (3^3 + 4^4) \times 2^2 + 3^3.$

$1164 := ((1! + 1! + 3!) \times 4! + 2!) \times 3! = 1^1 + (1^1 + 3^3 + 4^4) \times 2^2 + 3^3.$

$1248 := (1! + 1! + 3!) \times 3! \times (4! + 2!) = (1^1 + 1^1 + 3^3 + 3^3 + 4^4) \times 2^2.$

$1296 := ((2! + 4!) \times 2! + 2!) \times 4! = 2^2 \times 4^4 + 2^2 \times 2^2 + 4^4.$

$1297 := 1! + (1! + 2! + 4!) \times 2! \times 4! = 1^1 \times 1^1 + (2^2 + 4^4) \times 2^2 + 4^4.$

$1298 := (1! + (1! + 4! + 2!) \times 4!) \times 2! = 1^1 + 1^1 + 4^4 + (2^2 + 4^4) \times 2^2.$

$1300 := (2! + 2! \times 4!) \times (4! + 2!) = 2^2 \times (2^2 + 4^4) + 4^4 + 2^2.$

$1301 := 1! + (1! + 4!) \times 2! \times (2! + 4!) = 1^1 + (1^1 + 4^4 + 2^2) \times 2^2 + 4^4.$

$1344 := 2! \times (2! + 2! + 4!) \times 4! = 2^2 \times (2^2 \times 2^2 + 4^4) + 4^4.$

$1392 := ((2! + 4!) \times 2! + 3!) \times 4! = 2^2 + 4^4 + 2^2 \times (3^3 + 4^4).$

$1404 := (2! + 4!) \times (3! + 2! \times 4!) = (2^2 + 4^4 + 3^3) \times 2^2 + 4^4.$

$1512 := (1! + 3!) \times 3! \times 3! \times 3! = (1^1 + 3^3 + 3^3) \times 3^3 + 3^3.$

$1513 := 1! + (1! + 3!) \times 3! \times 3! \times 3! = 1^1 + (1^1 + 3^3 + 3^3) \times 3^3 + 3^3.$

$1753 := 1! + (1! + 3! \times 3! \times 2!) \times 4! = 1^1 \times 1^1 \times 3^3 \times 3^3 + 2^2 \times 4^4.$

$2160 := (2! + 1!) \times (3! + 4!) \times 4! = 2^2 \times (1^1 + 3^3 + 4^4 + 4^4).$

$2304 := (2! + 2!) \times 4! \times 4! = (2^2 + 2^2) \times 4^4 + 4^4.$

$2305 := 1! + (2! + 2!) \times 4! \times 4! = 1^1 + (2^2 + 2^2) \times 4^4 + 4^4.$

$2306 := 1! + 1! + (2! + 2!) \times 4! \times 4! = 1^1 + 1^1 + (2^2 + 2^2) \times 4^4 + 4^4.$

$2308 := 2! \times (2! + (2! \times 4!) \times 4!) = 2^2 + (2^2 + 2^2) \times 4^4 + 4^4.$

$$2312 := (1!+1!+2!)\times(2!+4!\times 4!) = (1^1+1^1)\times(2^2+2^2\times 4^4)+4^4.$$
$$3388 := (1!+1!+2!+4!)\times(1!+5!) = 1^1+1^1+2^2+4^4+1^1+5^5.$$
$$3389 := 1!+(1!+5!)\times(2!+2!+4!) = 1^1\times 1^1\times 5^5+2^2+2^2+4^4.$$
$$3745 := 1!\times 1!+4!\times(3!\times 3!+5!) \quad = (1^1+1^1)\times(4^4+3^3+3^3)+5^5.$$

$$4176 := (1!\times 1!\times 4!\times 4!+5!)\times 3! = (1^1+1^1)\times(4^4+4^4)+5^5+3^3.$$
$$4608 := (2!+2!)\times 4!\times(4!+4!) \quad = 2^2\times 2^2\times 4^4+4^4+4^4.$$
$$7200 := (1!\times 1!+4!)\times 3!\times 2!\times 4! = 1^1+(1^1+4^4)\times 3^3+2^2+4^4.$$
$$9216 := 2!\times(2!+3!)\times 4!\times 4! \quad = (2^2+2^2+3^3)\times 4^4+4^4.$$

$$13824 := (1!+1!)\times 4!\times(3!+3!)\times 4! = 1^1\times 1^1\times 4^4\times 3^3+3^3\times 4^4.$$
$$20736 := (4!+3!+3!)\times 4!\times 4! \quad = 4^4\times 3^3+3^3\times(4^4+4^4).$$
$$27648 := (1!+1!+3!)\times 3!\times 4!\times 4! \quad = ((1^1\times 1^1)\times 3^3+3^3)\times(4^4+4^4).$$

$$34560 := (1!+1!)\times 4!\times 4!\times(4!+3!) \quad = ((1^1+1^1)\times(4^4+4^4)+4^4)\times 3^3.$$
$$41472 := (3!+3!)\times 3!\times 4!\times 4! \quad = (3^3+3^3+3^3)\times(4^4+4^4).$$
$$60480 := ((1!+1!)\times(3!+4!)+4!)\times 6! = (1^1\times 1^1)\times 3^3\times(4^4+4^4)+6^6.$$
$$87864 := (2!+5!)\times 3!\times 5!+4! \quad = (2^2+5^5)\times 3^3+5^5+4^4.$$

$$107136 := (1!\times 1!\times 6!+4!)\times 4!\times 3! \quad = (1^1+1^1)\times 6^6+(4^4+4^4)\times 3^3.$$
$$120960 := (1!\times 1!\times 4!+4!\times 3!)\times 6! \quad = (1^1+1^1)\times((4^4+4^4)\times 3^3+6^6).$$
$$233280 := ((1!+1!)\times 4!+3!)\times 3!\times 6! = 1^1\times 1^1\times 4^4\times 3^3\times 3^3+6^6.$$
$$241920 := (2!+3!+3!)\times 4!\times 6! \quad = 2^2\times((3^3+3^3)\times 4^4+6^6).$$
$$527040 := (2!\times 3!+3!\times 5!)\times 6! \quad = 2^2\times(3^3\times(3^3+5^5)+6^6).$$

3.3 Repeated Digits Equalities with Positive and Negative Signs

This subsection deals with examples of expression (3) with repetition of digits having positive and negative signs.

$$3 := 1!+2! = -1^1+2^2.$$

$$\begin{aligned} 4 &:= 1!+1!\times 1!+2! \quad = (1^1+1^1-1^1)\times 2^2 \\ &:= 1!\times 1!\times 2!+2! \quad = (1^1+1^1)\times 2^2-2^2 \\ &:= -3!+(3!-1!)\times 2! = (-3^3+3^3+1^1)\times 2^2. \end{aligned}$$

$$\begin{aligned} 5 &:= 1!+1!+1!+2! \quad = 1^1+1^1-1^1+2^2 \\ &:= -1!+2!+2!+2! = 1^1+2^2+2^2-2^2 \\ &:= -1!+2!\times 3!-3! = 1^1+2^2+3^3-3^3. \end{aligned}$$

$$6 := 1!+1!+2!+2! = -1^1-1^1+2^2+2^2.$$

$$\begin{aligned} 7 &:= 2!\times(2!+1!)+1! = 2^2+2^2\times 1^1-1^1 \\ &:= 1!+2!-2!+3! \quad = -(1^1+2^2)\times 2^2+3^3. \end{aligned}$$

$$8 := 1! \times 2! \times 2! \times 2! \quad = (-1^1 + 2^2) \times 2^2 - 2^2$$
$$:= 2! + 2! + 2! + 2! \quad = 2^2 + 2^2 + 2^2 - 2^2$$
$$:= -2! - 2! + 3! + 3! = 2^2 + 2^2 + 3^3 - 3^3.$$

$$9 := 1! \times 1! + 2! \times 2! \times 2! = 1^1 + (-1^1 + 2^2) \times 2^2 - 2^2$$
$$:= 1! + 2! + 2! - 2! + 3! = (1^1 + 2^2 + 2^2) \times 2^2 - 3^3.$$

$$10 := 1! \times 2! + 2! + 3! \quad = -1^1 - 2^2 \times 2^2 + 3^3.$$
$$11 := 1! + 2! + 2! + 3! \quad = -(1^1 \times 2^2) \times 2^2 + 3^3.$$
$$12 := 2! \times (2! + 1!) + 3! = -2^2 \times 2^2 + 1^1 + 3^3.$$

$$13 := 1! + 2! + 2! + 2! + 3! \quad = (1^1 + 2^2) \times (2^2 + 2^2) - 3^3$$
$$:= -1! - 2! - 2! - 3! + 4! = -(1^1 + 2^2 + 2^2) \times 3^3 + 4^4.$$

$$14 := (1! + 1! + 2!) \times 2! + 3! = -1^1 + (1^1 - 2^2) \times 2^2 + 3^3$$
$$:= (1! + 2!) \times 2! + 2! + 3! = -1^1 - 2^2 - 2^2 - 2^2 + 3^3$$
$$:= 1! \times 2! - 3! - 3! + 4! \quad = (1^1 + 2^2) \times (3^3 + 3^3) - 4^4.$$

$$15 := -1 + (2! + 2!) \times 2! \times 2! = -1^1 + 2^2 + 2^2 + 2^2 + 2^2$$
$$:= 1! \times 1! + 2! + 2! \times 3! \quad = -(1^1 + 1^1) \times 2^2 - 2^2 + 3^3.$$

$$16 := ((1! + 2!) \times 2! + 2!) \times 2! \quad = (1^1 + 2^2 - 2^2) \times 2^2 \times 2^2$$
$$:= -4! + (-2! - 2! + 4!) \times 2! = (4^4 + 2^2) \times 2^2 - 4^4 \times 2^2$$
$$:= 1! \times 2! + 2! + 3! + 3! \quad = 1^1 \times 2^2 \times 2^2 + 3^3 - 3^3.$$

$$17 := 1! + 2! + 2! + 3! + 3! = 1^1 + 2^2 \times 2^2 + 3^3 - 3^3.$$

$$18 := 2! \times (2! + 1!) \times (2! + 1!) = 2^2 \times 2^2 - 1^1 + 2^2 - 1^1$$
$$:= (-1! + 2! + 2!) \times 3! \quad = -1^1 - 2^2 - 2^2 + 3^3.$$

$$19 := 1! + (1! + 2!) \times 3! = -(1^1 + 1^1) \times 2^2 + 3^3.$$

$$20 := (1! + 2!) \times 3! + 2! \quad = 1^1 - 2^2 + 3^3 - 2^2$$
$$:= (2! + 2! + 1!) \times 2! \times 2! = (2^2 + 2^2 + 1^1 - 2^2) \times 2^2$$
$$:= (2! + 2!) \times 3! - 3! + 2! = 2^2 \times 2^2 + 3^3 - 3^3 + 2^2$$
$$:= -2! - 4! + 4! \times 2! - 2! = (2^2 + 4^4 - 4^4) \times 2^2 + 2^2.$$

$$21 := (1! + 2!) \times (1! + 3!) \quad = -1^1 - 2^2 - 1^1 + 3^3.$$
$$22 := (1! + 2! + 2! + 3!) \times 2! = -1^1 - 2^2 - 2^2 + 3^3 + 2^2.$$
$$23 := 1! - 2! + 2! \times 2! \times 3! \quad = -1^1 \times 2^2 + 2^2 - 2^2 + 3^3.$$

$$24 := (1! + 1! + 2!) \times 3! \quad = 1^1 \times 1^1 - 2^2 + 3^3$$
$$:= (1! + 1! + 1! + 1!) \times 3! = -(1^1 + 1^1 + 1^1) \times 1^1 + 3^3.$$

$$25 := (1! \times 1! - 3!) \times (1! - 3!) = (1^1 + 1^1) \times (3^3 - 1^1) - 3^3$$
$$:= 1! \times 1! + (2! + 2!) \times 3! \quad = -1^1 - 1^1 - 2^2 + 2^2 + 3^3.$$

$$26 := (1! + 2! \times 3!) \times 2! \qquad = -1^1 - 2^2 + 3^3 + 2^2$$
$$:= (1! + 1!) \times (1! + 3! + 3!) = -1^1 + (1^1 + 1^1) \times 3^3 - 3^3.$$

$$27 := (1! + 2!) \times (1! + 2! + 3!) = ((1^1 + 2^2) \times 1^1 - 2^2) \times 3^3.$$

$$28 := (2! + 2!) \times (1! + 3!) \quad = -2^2 + 2^2 + 1^1 + 3^3$$
$$:= -3! - 1! + 1! + 3! \times 3! = 3^3 + 1^1 \times 1^1 + 3^3 - 3^3.$$

$$29 := -1! \times 1! - 3! + 3! \times 3! = 1^1 + 1^1 + 3^3 + 3^3 - 3^3$$
$$:= (1! + 2! + 2!) \times 3! - 1! = 1^1 + 2^2 - 2^2 + 3^3 + 1^1.$$

$$30 := (1! + 2!) \times 3! + 3! + 3! \quad = -1^1 + 2^2 + 3^3 - 3^3 + 3^3$$
$$:= -(1! + 2!) \times 3! + 4! + 4! = -1^1 + 2^2 + 3^3 - 4^4 + 4^4.$$

$$31 := -1! + 2! - 3! + 3! \times 3! = 1^1 \times 2^2 + 3^3 + 3^3 - 3^3$$
$$:= 1! - 4! + 4! \times 2! + 3! \quad = (1^1 + 4^4 - 4^4) \times 2^2 + 3^3.$$

$$32 := 1! \times 2! - 3! + 3! \times 3! \qquad = 1^1 + 2^2 + 3^3 + 3^3 - 3^3$$
$$:= -4! + (4! + 2! + 2!) \times 2! = (-4^4 + 4^4 + 2^2 + 2^2) \times 2^2.$$

$$33 := 1! + (2! + 2!) \times (2! + 3!) = (1^1 - 2^2) \times (2^2 \times 2^2 - 3^3).$$

$$34 := (3! + 2!) \times (3! - 2!) + 2! = 3^3 - 2^2 + 3^3 - 2^2 \times 2^2$$
$$:= 3! + (2! + 2!) \times (1! + 3!) = 3^3 - 2^2 \times (2^2 + 1^1) + 3^3.$$

$$35 := -1! + (1! + 2!) \times 2! \times 3! = (-1^1 - 1^1 + 2^2) \times 2^2 + 3^3.$$
$$36 := 2! \times 3! \times (3! - 1!) - 4! \quad = -2^2 \times (3^3 + 3^3 + 1^1) + 4^4.$$

$$37 := 1! + (2! + 2! + 2!) \times 3! = 1^1 \times 2^2 \times 2^2 \times 2^2 - 3^3.$$

$$38 := (3! + 3! + 3!) \times 2! + 2! \quad = -3^3 - 3^3 + (3^3 - 2^2) \times 2^2$$
$$:= (-1! + 2!) \times 2! + 3! \times 3! = -1^1 \times 2^2 \times 2^2 + 3^3 + 3^3.$$

$$39 := (1! + 3! \times 2!) \times (1! + 2!) = 1^1 \times 3^3 + (2^2 - 1^1) \times 2^2$$
$$:= 1! + 2! + 2! \times 3! + 4! \qquad = -1^1 - (2^2 + 2^2) \times 3^3 + 4^4.$$

$$40 := (2! + 3! + 2!) \times 2! \times 2! = 2^2 \times (3^3 - 2^2 \times 2^2) - 2^2$$
$$:= 2! + 3! + 2! + 3! + 4! \quad = -2^2 \times 3^3 - 2^2 \times 3^3 + 4^4.$$

$$41 := -1! + 2! \times 3! + 3! + 4! = 1^1 - 2^2 \times (3^3 + 3^3) + 4^4.$$

$$42 := (2! + 2! + 2!) \times 3! + 3! = -2^2 - 2^2 - 2^2 + 3^3 + 3^3$$
$$:= (1! + 2!) \times 2! \times 3! + 3! = (1^1 - 2^2) \times 2^2 + 3^3 + 3^3.$$

$$43 := 1! + (1! + 2!) \times 2! + 3! \times 3! = (1^1 + 1^1) \times (2^2 + 2^2 + 3^3) - 3^3$$
$$:= 1! \times 1! + 3! + 3! \times 2! + 4! \quad = -1^1 + (1^1 - 3^3 - 3^3) \times 2^2 + 4^4.$$

$$44 := (3! \times 2! \times 2! - 2!) \times 2! \quad = 3^3 \times 2^2 - 2^2 \times 2^2 \times 2^2$$
$$:= 2! \times (2! + 2! + 3!) + 4! \quad = 2^2 - (2^2 + 2^2) \times 3^3 + 4^4$$
$$:= (-1! + 3! \times 2!) \times 2! \times 2! = (1^1 \times 3^3 - 2^2 \times 2^2) \times 2^2.$$

$$45 := -1! - 2! + (2! + 3!) \times 3! = -1^1 - 2^2 - 2^2 + 3^3 + 3^3.$$

$$46 := -2! + (2! + 3!) \times 3! \quad = -2^2 - 2^2 + 3^3 + 3^3$$
$$:= -1! \times 2! + (2! + 3!) \times 3! = -1^1 \times 2^2 - 2^2 + 3^3 + 3^3.$$

$$47 := -1! + (2! + 2!) \times 2! \times 3! = 1^1 \times 2^2 \times 2^2 + 2^2 + 3^3.$$

$$48 := (3! + 2!) \times (2! + 2! + 2!) = (3^3 - 2^2 \times 2^2) \times 2^2 + 2^2$$
$$:= (1! + 1! + 2!) \times (3! + 3!) = -1^1 - 1^1 - 2^2 + 3^3 + 3^3.$$

$$49 := 1! + (2! + 3!) \times 3! = -1^1 - 2^2 + 3^3 + 3^3.$$

$$50 := 2! + 2! \times 3! + 3! \times 3! \quad = -2^2 + 2^2 \times 3^3 - 3^3 - 3^3$$
$$:= 1! + 1! + (2! + 3!) \times 3! = -1^1 \times 1^1 \times 2^2 + 3^3 + 3^3$$
$$:= 2! + 3! - 3! + 4! + 4! \quad = -2^2 + 3^3 + 3^3 - 4^4 + 4^4.$$

$$51 := 2! + (3! + 1!) \times (3! + 1!) = -2^2 + 3^3 \times 1^1 + 3^3 + 1^1.$$

$$52 := (1! + 1!) \times (2! + 3!) + 3! \times 3! = -1^1 - 1^1 + 2^2 \times 3^3 - 3^3 - 3^3$$
$$:= -1! - 1! \times 1! + 3! + 4! + 4! \quad = -(1^1 + 1^1) \times (1^1 - 3^3) - 4^4 + 4^4.$$

$$53 := -1! + (2! + 3!) \times 3! + 3! = -1^1 + 2^2 \times 3^3 - 3^3 - 3^3.$$
$$54 := (2! + 3!) \times 3! + 3! \quad = 2^2 \times 3^3 - 3^3 - 3^3.$$
$$55 := 1! + (2! + 3!) \times 3! + 3! \quad = 1^1 + 2^2 \times 3^3 - 3^3 - 3^3.$$

$$56 := (1! \times 1! + 3!) \times (3! + 2!) = -1^1 - 1^1 + 3^3 + 3^3 + 2^2$$
$$:= -2! - 2! + 3! \times 3! + 4! \quad = 2^2 \times (2^2 - 3^3 - 3^3) + 4^4.$$

$$57 := 1! + (1! + 3!) \times (3! + 2!) = -1^1 \times 1^1 + 3^3 + 3^3 + 2^2.$$

$$58 := (2! + 3!) \times (2! + 3!) - 3! = 2^2 \times 3^3 + 2^2 - 3^3 - 3^3$$
$$:= (2! + 3!) \times (3! + 1!) + 2! = 2^2 - 3^3 - 3^3 \times (1^1 - 2^2)$$
$$:= -2! + 3! + 3! + 4! + 4! \quad = 2^2 + 3^3 + 3^3 + 4^4 - 4^4.$$

$$59 := -1! + 2! \times (-1! + 3!) \times 3! = (1^1 + 2^2) \times 1^1 + 3^3 + 3^3.$$

$$60 := ((2! + 2!) \times 2! + 2!) \times 3! = 2^2 \times (-2^2 - 2^2 - 2^2 + 3^3)$$
$$:= (1! + 2! + 2!) \times 3! \times 2! \quad = ((1^1 - 2^2) \times 2^2 + 3^3) \times 2^2.$$

$$61 := 1! + (2! + 2! + 3!) \times 3! \quad = -1^1 + 2^2 + 2^2 + 3^3 + 3^3.$$
$$62 := (-1! + 3!) \times 2! \times 3! + 2! \quad = 1^1 \times 3^3 + 2^2 + 3^3 + 2^2.$$
$$63 := -1! + (2! + 3!) \times (2! + 3!) = 1^1 + 2^2 + 3^3 + 2^2 + 3^3.$$

$$64 := 2! \times (-2! - 2! + 3! \times 3!) \quad = 2^2 \times 2^2 \times 2^2 + 3^3 - 3^3$$
$$:= (2! + 2!) \times (-2! + 4!) - 4! = 2^2 \times 2^2 \times 2^2 + 4^4 - 4^4.$$

$$65 := 1! + (2! + 3!) \times (2! + 3!) = (-1^1 \times 2^2 + 3^3) \times 2^2 - 3^3$$
$$66 := (1! + 2! + 2! + 3!) \times 3! \quad = (-1^1 + 2^2) \times 2^2 + 3^3 + 3^3.$$

$$67 := -1! \times 1! + 2! \times (-2! + 3! \times 3!) = 1^1 + 1^1 - 2^2 \times (2^2 - 3^3) - 3^3$$
$$:= 1! + (1! + 2!) \times 3! + 2! \times 4! \quad = -1^1 + (-1^1 + 2^2) \times 3^3 \times 2^2 - 4^4.$$

$$68 := 2! \times (2! + 2! + 3! + 4!) = (2^2 + 2^2 + 2^2) \times 3^3 - 4^4$$
$$:= 2! + 3! + 3! \times 3! + 4! \quad = 2^2 \times (3^3 + 3^3 + 3^3) - 4^4.$$

$$69 := -1! - 2! + 2! \times 3! \times 3! = -1^1 + 2^2 \times 2^2 + 3^3 + 3^3.$$
$$70 := 3! \times 3! \times 2! - 2! \quad = 3^3 + 3^3 + 2^2 \times 2^2.$$
$$71 := 1! - 2! + 2! \times 3! \times 3! \quad = 1^1 + 2^2 \times 2^2 + 3^3 + 3^3.$$

$$72 := (2! + 2! + 2!) \times 2! \times 3! = -2^2 + 2^2 \times (-2^2 - 2^2 + 3^3)$$
$$:= (1! + 2!) \times 3! \times 2! \times 2! = (-1^1 - 2^2 + 3^3 - 2^2) \times 2^2$$
$$:= (2! + 2!) \times 2! \times 3! + 4! = (2^2 + 2^2) \times (2^2 - 3^3) + 4^4.$$

$$73 := 1! \times 1! + (2! \times 3!) \times 3! \quad = (1^1 + 1^1) \times (-2^2 + 3^3) + 3^3.$$
$$74 := -2! + 2! \times (2! + 3! \times 3!) \quad = 2^2 \times 2^2 + 2^2 + 3^3 + 3^3.$$
$$75 := 1! \times 1! + 2! + 2! \times 3! \times 3! = -1^1 - 1^1 - 2^2 + 2^2 \times 3^3 - 3^3.$$
$$76 := 1! \times 2! \times (2! + 3! \times 3!) \quad = -1^1 - 2^2 + 2^2 \times 3^3 - 3^3.$$
$$77 := -1! + 2! \times 3! \times 3! + 3! \quad = -1^1 \times 2^2 + 3^3 + 3^3 + 3^3.$$

$$78 := (1! \times 2!) \times 3! \times 3! + 3! \quad = 1^1 - 2^2 + 3^3 + 3^3 + 3^3.$$
$$79 := 1! + (1! + 2! \times 3!) \times 3! \quad = -1^1 - 1^1 + 2^2 \times 3^3 - 3^3.$$
$$80 := 2! + 3! + 2! \times 4! + 4! \quad = -2^2 \times 3^3 \times 2^2 + 4^4 + 4^4.$$
$$81 := 1! + (1! + 3! + 3!) \times 3! + 2! = -(1^1 + 1^1) \times 3^3 + 3^3 + 3^3 \times 2^2.$$
$$82 := ((1! + 3!) \times 3! - 1!) \times 2! \quad = 1^1 - 3^3 + 3^3 \times 1^1 \times 2^2.$$

$$83 := -1! + (1! + 3!) \times (3! + 3!) = 1^1 + 1^1 + 3^3 + 3^3 + 3^3$$
$$:= (1! + 3!) \times 2! \times 3! - 1! \quad = 1^1 - 3^3 + 2^2 \times 3^3 + 1^1.$$

$$84 := (1! \times 2! + 3! + 3!) \times 3! \quad = -1^1 + 2^2 + 3^3 + 3^3 + 3^3.$$
$$85 := 1! + (2! + 2! \times 3!) \times 3! \quad = 1^1 \times 2^2 + 2^2 \times 3^3 - 3^3.$$
$$86 := (1! + (3! + 1!) \times 3!) \times 2! \quad = 1^1 - 3^3 + (1^1 + 3^3) \times 2^2.$$
$$87 := -1! + (-1! + 2! \times 3!) \times (2! + 3!) = 1^1 + 1^1 + 2^2 - 3^3 + 2^2 \times 3^3.$$

$$88 := (-1! + 2! \times 3!) \times (2! + 3!) \quad = (1^1 + 2^2) \times (3^3 - 2^2) - 3^3.$$
$$90 := 1! + 1! + (2! - 3!) \times (2! - 4!) = -(1^1 + 1^1 + 2^2) \times 3^3 - 2^2 + 4^4.$$
$$92 := 2! - 3! + 2! \times (4! + 4!) \quad = (-2^2 + 3^3) \times 2^2 - 4^4 + 4^4.$$
$$93 := (1! \times 1! + 2!) \times (1! + 3! + 4!) = -1^1 - (1^1 + 2^2 + 1^1) \times 3^3 + 4^4.$$

$$94 := -2! + (3! + 3!) \times 3! + 4! \quad = -2^2 \times 3^3 - 3^3 - 3^3 + 4^4$$
$$:= -1! - 1! + (-2! + 3!) \times 4! = -(1^1 + 1^1 + 2^2) \times 3^3 + 4^4.$$

$$95 := -1! \times 1! + 2! \times (2! + 3!) \times 3! = -1^1 - 1^1 + 2^2 \times (2^2 + 3^3) - 3^3.$$

$$96 := 2! \times 2! \times 2! \times 2! \times 3! \quad = 2^2 - 2^2 \times 2^2 + 2^2 \times 3^3$$
$$:= 1! \times 2! \times (2! + 3!) \times 3! = (1^1 - 2^2) \times (2^2 - 3^3) + 3^3.$$

$$97 := 1! + 2! \times (2! + 3!) \times 3! \quad = (1^1 \times 2^2) \times (2^2 + 3^3) - 3^3.$$
$$98 := (1! + 3!) \times (2! + 2! \times 3!) \quad = 1^1 - 3^3 + 2^2 \times (2^2 + 3^3).$$
$$99 := 1! + (1! + 3!) \times (2! + 2! \times 3!) = 1^1 + 1^1 - 3^3 + 2^2 \times (2^2 + 3^3).$$

$$100 := 1! + 1! + 2! - (2! - 3!) \times 4! = -1^1 - (1^1 + 2^2) \times (2^2 + 3^3) + 4^4.$$
$$101 := -1! - 3! - 2! \times 3! + 5! \quad = -(1^1 + 3^3) \times 2^2 \times 3^3 + 5^5.$$

$$102 := (1! + 1! + 1!) \times (-2! + 3! \times 3!) \quad = (1^1 + 1^1) \times (1^1 - 2^2 + 3^3 + 3^3).$$
$$:= -1! \times 1! \times 3! - 3! \times 2! + 5! \quad = 1^1 - (1^1 + 3^3) \times 3^3 \times 2^2 + 5^5.$$
$$:= -1! - 1! + (-2! + 3!) \times (2! + 4!) = 1^1 - (1^1 + 2^2) \times (3^3 + 2^2) + 4^4.$$

$$103 := 1! + (1! + (2! + 3!) \times 2!) \times 3! = -((1^1 + 1^1) \times 2^2 - 3^3) \times 2^2 + 3^3$$
$$103 := 1! \times 1! + 3! + 2! \times (4! + 4!) \quad = -1^1 - (1^1 - 3^3) \times 2^2 - 4^4 + 4^4.$$

$$104 := (3! + 2!) \times (3! \times 2! + 1!) = -3^3 - 2^2 + 3^3 \times (2^2 + 1^1)$$
$$:= 3! + 2! + 2! \times (4! + 4!) \quad = 3^3 \times 2^2 - 2^2 + 4^4 - 4^4$$
$$:= -5! + 2! \times (5! - 2! - 3!) = -5^5 - 2^2 + 5^5 + 2^2 \times 3^3$$
$$:= 3! + (4! + 4! + 1!) \times 2! \quad = (3^3 + 4^4 - 4^4 - 1^1) \times 2^2.$$

$$105 := (1! + 2!) \times (-1! + 3! \times 3!) = (1^1 - 2^2) \times (1^1 - 3^3) + 3^3.$$

$$106 := -1! - 1! + (1! + 2!) \times 3! \times 3! \quad = -1^1 - 1^1 + (1^1 + 2^2) \times 3^3 - 3^3.$$
$$:= -1! - 1! + 2! \times (3! + 4! + 4!) \quad = -1^1 - 1^1 + 2^2 \times 3^3 - 4^4 + 4^4.$$
$$:= -1! - 1! + 2! \times (-3! + 5!) - 5! = -1^1 - 1^1 + 2^2 \times 3^3 - 5^5 + 5^5.$$

$$107 := (3! + 3! + 3!) \times 3! - 1! \quad = 3^3 + 3^3 + 3^3 + 3^3 - 1^1.$$
$$:= (1! + 2!) \times 3! \times 3! - 1! \quad = (1^1 + 2^2) \times 3^3 - 3^3 - 1^1.$$
$$:= (-3! + 5!) \times 2! - 5! - 1! = 3^3 \times (5^5 + 2^2 - 5^5) - 1^1.$$
$$:= (4! + 4! + 3!) \times 2! - 1! \quad = (-4^4 + 4^4 + 3^3) \times 2^2 - 1^1.$$

$$108 := 3! \times (3! + 3! \times 2!) \quad = (3^3 + 3^3 - 3^3) \times 2^2.$$
$$:= -5! + 2! \times (5! - 3!) = (5^5 + 2^2 - 5^5) \times 3^3.$$
$$:= 2! \times (3! + 4! + 4!) \quad = 2^2 \times 3^3 + 4^4 - 4^4.$$

$$109 := 1! + (1! + 2!) \times 3! \times 3! \quad = 1^1 + (1^1 + 2^2) \times 3^3 - 3^3.$$
$$:= -(2! - 4!) \times 3! - 4! + 1! = 2^2 \times (4^4 + 3^3 - 4^4) + 1^1.$$

$$110 := 1! + 1! + (2! \times 3! + 3!) \times 3! \quad = 1^1 + 1^1 + (2^2 + 3^3 - 3^3) \times 3^3.$$
$$:= 1! + 1! + 2! \times (3! + 4! + 4!) \quad = 1^1 + 1^1 + 2^2 \times 3^3 + 4^4 - 4^4$$
$$:= (1! + 1!) \times (-2! + 5!) - 3! - 5! = 1^1 + 1^1 + 2^2 \times (5^5 + 3^3 - 5^5).$$

$$111 := (1! + 2!) \times (1! + 3! \times 3!) = -(1^1 - 2^2) \times (1^1 + 3^3) + 3^3.$$

$$112 := (2! + 3! + 4! + 4!) \times 2! = 2^2 \times 3^3 + 4^4 - 4^4 + 2^2$$
$$:= 2! \times 5! - 2! - 3! - 5! \quad = 2^2 + 5^5 + 2^2 \times 3^3 - 5^5$$
$$:= (4! - 1!) \times 3! - 2! - 4! = 4^4 + (1^1 + 3^3) \times 2^2 - 4^4.$$

$$113 := -1! + (1! + 2!) \times (2! + 3! \times 3!) = (1^1 + 1^1) \times (2^2 \times 2^2 + 3^3) + 3^3$$
$$:= 1! - (1! + 3!) \times (2! + 3! - 4!) \quad = -(1^1 + 1^1 + 3^3) \times 2^2 - 3^3 + 4^4$$
$$:= -1! \times 1! - 3! + 2! \times 5! - 5! \quad = 1^1 + (1^1 + 3^3) \times 2^2 + 5^5 - 5^5.$$

$$114 := (1! + 1! + 1!) \times (2! + 3! \times 3!) = (1^1 + 1^1) \times (-1^1 + 2^2 + 3^3 + 3^3).$$

$$115 := 1! + (1! + (1! + 2!) \times 3!) \times 3! \quad = -1^1 + (1^1 + 1^1) \times (2^2 + 3^3 + 3^3)$$
$$:= (1! \times 1! - 2! + 3!) \times (-1! + 4!) = -1^1 - (1^1 + 2^2) \times (3^3 + 1^1) + 4^4.$$

$$116 := 2! \times (-2! + 2! \times (3! + 4!)) \quad = -2^2 \times (2^2 + 2^2 + 3^3) + 4^4.$$
$$117 := -1! \times 1! - 2! + (-1! + 3!) \times 4! = 1^1 - (1^1 + 2^2) \times (1^1 + 3^3) + 4^4.$$
$$118 := -1! - 1! + (2! + 2!) \times (3! + 4!) = (1^1 + 1^1 + 2^2) \times (2^2 - 3^3) + 4^4.$$

$$119 := -1! + (-1! + 3!) \times 3! \times 2! \times 2! = (1^1 \times 1^1) \times 3^3 + (3^3 - 2^2) \times 2^2$$
$$:= 1! \times 1! - 2! - (1! - 3!) \times 4! \quad = -1^1 - 1^1 - (2^2 + 1^1) \times 3^3 + 4^4.$$

$$120 := ((1! + 2!) \times 3! + 2!) \times 3! = -(1^1 - 2^2) \times (3^3 + 2^2) + 3^3$$
$$:= (1! \times 2! - 3! + 4!) \times 3! \quad = -1^1 - 2^2 \times 3^3 + 4^4 - 3^3.$$

$$121 := 1! - (2! - 3!) \times (3! + 4!) \quad = -(1^1 \times 2^2) \times 3^3 - 3^3 + 4^4.$$
$$122 := (1! + 4! + 3! \times 3!) \times 2! \quad = 1^1 + 4^4 - 3^3 - 3^3 \times 2^2.$$
$$123 := 1! \times 1! + 2! + (3! - 1!) \times 4! = 1^1 - (1^1 + 2^2) \times 3^3 + 1^1 + 4^4.$$

$$124 := 3! \times 4! - 4! + 2! + 2! = (3^3 + 4^4 - 4^4 + 2^2) \times 2^2$$
$$:= 2! \times 5! - 2! + 3! - 5! = 2^2 \times (5^5 + 2^2 + 3^3 - 5^5).$$

$$125 := -1! - 3! + (-2! + 4!) \times 3! = (1^1 - 3^3) \times 2^2 + 4^4 - 3^3.$$
$$126 := 1! \times 3! \times (-1! - 2! + 4!) \quad = (1^1 - 3^3) \times (1^1 + 2^2) + 4^4.$$

$$127 := 1! + (1! + 2!) \times (3! \times 3! + 3!) = (1^1 + 1^1) \times (-2^2 + 3^3 + 3^3) + 3^3$$
$$:= 1! \times 1! - 3! \times (1! + 2! - 4!) \quad = 1^1 + (1^1 - 3^3) \times (1^1 + 2^2) + 4^4.$$

$$128 := (2! + 2!) \times (2! + 3! + 4!) = -2^2 - 2^2 \times (2^2 + 3^3) + 4^4$$
$$:= (4! - 1! - 2!) \times 3! + 2! \quad = 4^4 - (1^1 + 2^2 + 3^3) \times 2^2.$$

$$129 := (1! + (1! + 3!) \times 3!) \times (1! + 2!) = (-((1^1 + 1^1) - 3^3) + ((3^3 - 1^1) \times 2^2))$$
$$:= -1! - (1! + 3!) \times 2! + 3! \times 4! \quad = (1^1 + 1^1 - 3^3) \times 2^2 - 3^3 + 4^4.$$

$$130 := (-1! + (-1! + 2! \times 3!) \times 3!) \times 2! = -1^1 \times 1^1 - 2^2 + 3^3 + 3^3 \times 2^2$$
$$:= -1! \times 1! \times 2! + 3! \times (-2! + 4!) \quad = -1^1 - 1^1 - (2^2 + 3^3) \times 2^2 + 4^4.$$

$$131 := 1! - 2! - 3! \times (2! - 4!) = -1^1 - (2^2 + 3^3) \times 2^2 + 4^4.$$

$$132 := (-1! + 2! \times 3!) \times 2! \times 3! = 1^1 - 2^2 + 3^3 + 2^2 \times 3^3$$
$$:= (-2! - 2! + 4! + 2!) \times 3! = -2^2 \times 2^2 + 4^4 - 2^2 \times 3^3$$
$$:= (1! - 2!) \times 3! \times (2! - 4!) = -(1^1 \times 2^2 + 3^3) \times 2^2 + 4^4.$$

$$133 := -1! + 2! + 3! \times (-2! + 4!) = 1^1 - (2^2 + 3^3) \times 2^2 + 4^4.$$

$$134 := 1! + 1! + (2! + 4!) \times 3! - 4! = -1^1 + (1^1 + 2^2) \times (4^4 + 3^3 - 4^4)$$
$$:= 1! + 1! + 2! \times (3! + 5!) - 5! = -1^1 + (1^1 + 2^2) \times 3^3 - 5^5 + 5^5.$$

$$136 := -(2! + 2!) \times 2! + 3! \times 4! = 2^2 - 2^2 \times (2^2 + 3^3) + 4^4$$
$$:= -2! + 3! \times (1! - 2! + 4!) = -(2^2 + 3^3 - 1^1) \times 2^2 + 4^4.$$

$$137 := -1! + (-1! + (2! + 2!) \times 3!) \times 3! = -1^1 - 1^1 + 2^2 + 2^2 \times 3^3 + 3^3.$$
$$138 := (-1! + (2! + 2!) \times 3!) \times 3! \qquad = -1^1 + 2^2 + 2^2 \times 3^3 + 3^3.$$

$$139 := 1! - (1! - (2! + 2!) \times 3!) \times 3! = 1^1 \times 1^1 \times 2^2 + 2^2 \times 3^3 + 3^3$$
$$:= 1! \times 1! + 3! \times (1! - 2! + 4!) \quad = -1^1 - (1^1 + 3^3 + 1^1) \times 2^2 + 4^4.$$

$$140 := (2! + 2!) \times (3! \times 3! - 1!) = 2^2 + 2^2 \times 3^3 + 3^3 + 1^1.$$
$$:= 4! \times 3! \times 1! - 2! - 2! \qquad = 4^4 - (3^3 + 1^1) \times 2^2 - 2^2.$$

$$141 := 1! - 2! - 2! + 3! \times 4! \qquad = (1^1 + 2^2) \times (2^2 - 3^3) + 4^4.$$
$$142 := 2! \times (-1! + 2! \times 3! \times 3!) = (2^2 + 1^1) \times (-2^2 + 3^3) + 3^3.$$

$$143 := 1! \times 4! \times 3! + 1! - 2! \quad = -1^1 + 4^4 - (3^3 + 1^1) \times 2^2.$$
$$:= -1! - 2! + 2! + 3! \times 4! = -1^1 - 2^2 - 2^2 \times 3^3 + 4^4.$$

$$144 := (-2! + 2! + 3!) \times 4! \ = -2^2 - 2^2 \times 3^3 + 4^4.$$
$$145 := 1! + 2! - 2! + 3! \times 4! = 1^1 - 2^2 - 2^2 \times 3^3 + 4^4.$$

$$146 := 2! + 2! \times 3! \times (3! + 3!) = -2^2 \times (2^2 - 3^3) + 3^3 + 3^3$$
$$:= 1! \times 1! \times 2! + 3! \times 4! \quad = -1^1 - 1^1 - 2^2 \times 3^3 + 4^4.$$

$$148 := -1! \times 2! + 3! + 3! \times 4! = -(1^1 + 2^2) \times 3^3 + 3^3 + 4^4.$$
$$149 := 1! + 2! + 2! + 3! \times 4! \quad = (-1^1 + 2^2 \times 2^2) \times 3^3 - 4^4.$$

$$150 := (1! + (2! + 2!) \times 3!) \times 3! = (1^1 - 2^2) \times (2^2 - 3^3 - 3^3)$$
$$:= (4! - 1! + 2!) \times 3! \times 1! \quad = 4^4 + 1^1 - 2^2 \times 3^3 + 1^1.$$

$$151 := -(1! - 4! - 2!) \times 3! + 1! = -1^1 + 4^4 + 2^2 \times (-3^3 + 1^1).$$

$$152 := (2! + 2!) \times (2! + 3! \times 3!) = 2^2 \times (-2^2 \times 2^2 + 3^3 + 3^3)$$
$$:= 1! \times 2! + 3! \times (1! + 4!) \quad = (1^1 \times 2^2) \times (-3^3 + 1^1) + 4^4.$$

$$153 := -1! - 2! + 3! \times (2! + 4!) = 1^1 + 2^2 - 3^3 \times 2^2 + 4^4.$$

$$154 := (-1! + (1! + 3! + 3!) \times 3!) \times 2! = (1^1 + 1^1) \times (3^3 + 3^3 + 3^3 - 2^2).$$
$$:= -1! \times 1! \times 2! + 3! \times (2! + 4!) \quad = 1^1 + 1^1 + 2^2 - 3^3 \times 2^2 + 4^4.$$

$$155 := -1! + (1! + 2! \times 3!) \times 2! \times 3! = (1^1 \times 1^1 + 2^2 + 3^3) \times 2^2 + 3^3$$
$$155 := -1! - 1! + 1! + 3! \times (2! + 4!) = -1^1 + (1^1 + 1^1 - 3^3) \times 2^2 + 4^4$$
$$155 := 1! \times 1! - 2! + 3! \times 3! + 5! \quad = -(1^1 + 1^1 + 2^2 \times 3^3) \times 3^3 + 5^5.$$

$$156 := (2! + 2! + 4! - 2!) \times 3! = 2^2 + 2^2 + 4^4 - 2^2 \times 3^3.$$
$$:= 1! \times 1! \times 3! \times (2! + 4!) = (1^1 + 1^1 - 3^3) \times 2^2 + 4^4.$$

$$157 := 1! + (1! + 2! \times 3!) \times 2! \times 3! = (1^1 + 1^1) \times 2^2 \times (3^3 - 2^2) - 3^3$$
$$157 := 1! \times 1! + 3! \times 1! \times (2! + 4!) = 1^1 + (1^1 - 3^3 + 1^1) \times 2^2 + 4^4.$$

$$158 := (1! + (1! + 3! + 3!) \times 3!) \times 2! = (1^1 + 1^1) \times (3^3 + 3^3 + 3^3) - 2^2.$$
$$159 := 1! \times 1! + 2! + 3! \times (2! + 4!) \quad = -1^1 - (1^1 - 2^2 + 3^3) \times 2^2 + 4^4.$$

$$160 := 2! + 2 + 3! \times (2! + 4!) \quad = (-2^2 + 2^2 \times 3^3) \times 2^2 - 4^4.$$
$$:= -2! + 3! \times (1! + 2! + 4!) = (2^2 - 3^3 - 1^1) \times 2^2 + 4^4.$$

$$161 := -1! + (1! + 2!) \times (3! + 2! \times 4!) = 1^1 - (1^1 - 2^2 + 3^3) \times 2^2 + 4^4.$$

$$162 := (-1! + (((1! + 3!) \times 2!) \times 2!)) \times 3! = -(1^1 + 1^1) \times 3^3 + (2^2 + 2^2) \times 3^3$$
$$:= (1! \times 1! + 2!) \times (3! + 2! \times 4!) \quad = -1^1 - 1^1 + (2^2 - 3^3) \times 2^2 + 4^4.$$

$$163 := 1! + (1! + 2!) \times (3! + 2! \times 4!) = (1^1 \times 1^1 - 2^2) \times (3^3 + 2^2) + 4^4.$$
$$164 := (1! + 4! + 2!) \times 3! + 2! \quad = 1^1 \times 4^4 + (2^2 - 3^3) \times 2^2.$$
$$165 := 1! + (1! + 4! + 2!) \times 3! + 2! \quad = 1^1 \times 1^1 + 4^4 + (2^2 - 3^3) \times 2^2.$$

$$166 := (-1! + (1! + 3!) \times 3! \times 2!) \times 2! = (1^1 + 1^1) \times 3^3 + 3^3 \times 2^2 + 2^2.$$
$$:= -1! - 1! + 3! \times (2! + 2! + 4!) \quad = 1^1 + 1^1 - (3^3 - 2^2) \times 2^2 + 4^4.$$

$$167 := -1! + (1! + 3!) \times 2! \times (3! + 3!) = 1^1 + (1^1 + 3^3) \times 2^2 + 3^3 + 3^3$$
$$167 := -1! + (1! + 2! \times 3! - 3!) \times 4! \quad = -(1^1 + 1^1) \times (2^2 + 3^3) - 3^3 + 4^4.$$

$$168 := (2!+2!)\times(-3!+2!\times 4!) = 2^2\times(2^2-3^3)+2^2+4^4$$
$$:= (1!+2!+3!-2!)\times 4! \quad = (1^1+2^2-3^3)\times 2^2+4^4.$$

$$169 := 1!\times 1!+3!\times(2!+2!+4!) = 1^1+(1^1-3^3+2^2)\times 2^2+4^4.$$

$$170 := (1!+(1!+3!)\times 3!\times 2!)\times 2! = (1^1+1^1)\times(-3^3+3^3\times 2^2+2^2)$$
$$:= 1!+1!+3!\times(2!+2!+4!) \quad = -(1^1+1^1)\times(3^3+2^2\times 2^2)+4^4.$$

$$171 := 1!\times 1!+2!+(1!+3!)\times 4! = -1^1+(1^1-2^2)\times(1^1+3^3)+4^4.$$
$$172 := 2!+2!+(3!+1!)\times 4! \quad = 2^2\times(2^2\times 3^3-1^1)-4^4.$$

$$173 := -1!\times 1!-3!+3!\times(3!+4!) = -1^1-1^1-3^3-3^3-3^3+4^4$$
$$:= -1!+(1!-2!+3!+4!)\times 3! = -1^1-1^1-2^2\times 3^3+4^4+3^3.$$

$$174 := (1!-2!+3!+4!)\times 3! = -1^1-2^2\times 3^3+4^4+3^3.$$

$$175 := (3!+4!)\times 3!-3!+1! \quad = -3^3+4^4-3^3-3^3\times 1^1$$
$$:= (-1!+2!+3!)\times(1!+4!) = (1^1-2^2)\times 3^3\times 1^1+4^4.$$

$$176 := (2!+2!)\times 2!\times(-2!+4!) = -(2^2\times 2^2+2^2)\times 2^2+4^4$$
$$:= 2!+3!+(1!+3!)\times 4! \quad = -2^2\times 3^3+1^1+3^3+4^4.$$

$$177 := 1!+(4!-2!)\times(3!+2!) = 1^1-4^4+2^2\times 3^3\times 2^2.$$

$$180 := (2!+2!+2!)\times(3!+4!) = 2^2\times(2^2+2^2-3^3)+4^4$$
$$:= (2!+1!)\times 2!\times(3!+4!) = 2^2\times(1^1+2^2\times 3^3)-4^4.$$

$$181 := -1!+(1!+3!)\times(2!\times 1!+4!) = (1^1+1^1-3^3)\times(2^2-1^1)+4^4$$
$$:= 1!-(1!-3!)\times 2!\times 3!+5! \quad = -1^1-(1^1+3^3\times 2^2)\times 3^3+5^5.$$

$$183 := 1!\times 1!+2!+3!\times(3!+4!) = (1^1+1^1)\times(2^2-3^3)-3^3+4^4.$$

$$184 := (1!+1!+2!)\times(-2!+2!\times 4!) = -(1^1+1^1+2^2\times 2^2)\times 2^2+4^4$$
$$:= (1!+1!-3!)\times(2!-2!\times 4!) \quad = (1^1+1^1+3^3\times 2^2)\times 2^2-4^4.$$

$$186 := 2!\times(-2!+3!)\times 4!-3! = -2^2\times 2^2-3^3+4^4-3^3.$$

$$188 := 2!\times(-2!+(2!+2!)\times 4!) = -2^2\times 2^2\times 2^2-2^2+4^4$$
$$:= (2!+2!)\times(-1!+2!\times 4!) = -(2^2\times 2^2+1^1)\times 2^2+4^4.$$

$$189 := -1!+(-1!+3!)\times(2!+3!\times 3!) = (1^1+1^1)\times 3^3+2^2\times 3^3+3^3.$$
$$190 := (-1!+3!)\times(3!\times 3!+2!) \quad = 1^1-3^3+(3^3+3^3)\times 2^2.$$
$$191 := -1!+(2!+2!)\times 2!\times 4! \quad = -1^1-2^2\times 2^2\times 2^2+4^4.$$

$$192 := (2!+2!)\times 2!\times 4! \quad = -2^2\times 2^2\times 2^2+4^4.$$
$$193 := 1!+(2!+2!)\times 2!\times 4! = 1^1-(2^2\times 2^2)\times 2^2+4^4.$$

$$194 := (2! + 3! + 4!) \times 3! + 2! = -2^2 - 3^3 + 4^4 - 3^3 - 2^2$$
$$:= 1! + 1! + (2! + 3!) \times 4! = -(1^1 + 1^1) \times (2^2 + 3^3) + 4^4.$$

$$195 := 1! + 1! + 1! + (2! + 3!) \times 4! = 1^1 - (1^1 + 1^1) \times (2^2 + 3^3) + 4^4.$$

$$196 := (2! + (2! + 2!) \times 4!) \times 2! = -2^2 \times 2^2 \times 2^2 + 4^4 + 2^2$$
$$:= (4! \times 2! + 1!) \times 2! \times 2! \quad = 4^4 + 2^2 \times (1^1 - 2^2 \times 2^2).$$

$$197 := (2! + 3!) \times 4! + 3! - 1! = -2^2 - 3^3 + 4^4 - 3^3 - 1^1.$$

$$198 := (2! + 3!) \times 4! + 3! = -2^2 - 3^3 + 4^4 - 3^3.$$

$$199 := 1! + (2! + 3!) \times 4! + 3! \qquad = 1^1 - 2^2 - 3^3 + 4^4 - 3^3.$$
$$200 := (1! + 1! + 3!) \times (1! + 4!) \qquad = -(1^1 + 1^1) \times (3^3 + 1^1) + 4^4.$$
$$201 := 1! + (1! + 1! + 3!) \times (1! + 4!) = -(1^1 + 1^1) \times 1^1 \times 3^3 - 1^1 + 4^4.$$
$$202 := (2! + 3!) \times (2! + 4!) - 3! \qquad = -2^2 - 3^3 + 2^2 + 4^4 - 3^3.$$

$$203 := (-1! + 4! + 3!) \times (1! + 3!) \quad = 1^1 + 4^4 - 3^3 \times 1^1 - 3^3.$$
$$204 := (1! + 1!) \times 3! + (2! + 3!) \times 4! = -1^1 - 1^1 - 3^3 + 2^2 - 3^3 + 4^4.$$
$$205 := 1! - 3! \times 3! + 2! \times 5! \qquad = -(1^1 + 3^3 \times 3^3) \times 2^2 + 5^5.$$
$$206 := (1! + 4!) \times (2! + 3!) + 3! \qquad = 1^1 \times 4^4 + 2^2 - 3^3 - 3^3.$$

$$207 := 1! + (1! + 4!) \times (3! + 2!) + 3! = 1^1 \times 1^1 + 4^4 - 3^3 + 2^2 - 3^3$$
$$:= 1! + (1! + 5!) \times 2! - 3! \times 3! \quad = -(1^1 + 1^1) + 5^5 - (2^2 \times 3^3) \times 3^3.$$

$$208 := (2! + 2!) \times 2! \times (2! + 4!) = -(2^2 + 2^2 + 2^2) \times 2^2 + 4^4.$$

$$209 := 1! + (1! + 1! + 3!) \times (2! + 4!) = -1^1 - (1^1 + 1^1) \times (3^3 - 2^2) + 4^4$$
$$:= -1! + (1! - 3!) \times 3! + 2! \times 5! = -(1^1 \times 1^1) \times 3^3 \times 3^3 \times 2^2 + 5^5.$$

$$210 := (1! - 3!) \times 3! + 2! \times 5! \qquad = 1^1 - 3^3 \times 3^3 \times 2^2 + 5^5.$$
$$211 := 1! + (1! - 3!) \times 3! + 2! \times 5! \qquad = 1^1 + 1^1 - (3^3 \times 3^3) \times 2^2 + 5^5.$$
$$212 := (1! + 1!) \times (-(3! + 3!) - 2! + 5!) = -1^1 + (1^1 - 3^3 \times 3^3) \times 2^2 + 5^5.$$
$$213 := -1! + (-1! + (4! - 3!) \times 3!) \times 2! = -(1^1 + 1^1) \times 4^4 + 3^3 \times 3^3 - 2^2.$$
$$214 := -2! + (2! + 1! + 3!) \times 4! \qquad = -2^2 \times 2^2 + 1^1 - 3^3 + 4^4.$$

$$215 := -1! + (1! + 2!) \times 2! \times 3! \times 3! \quad = -1^1 + (1^1 + 2^2 + 2^2) \times 3^3 - 3^3$$
$$:= -1! + (1! + (2! + 2!) \times 2!) \times 4! = -1^1 - (1^1 + 2^2) \times (2^2 + 2^2) + 4^4.$$

$$216 := (2! + 2! + 2!) \times 3! \times 3! \quad = (2^2 + 2^2 - 2^2) \times (3^3 + 3^3)$$
$$:= (1! + 2!) \times 2! \times 3! \times 3! \quad = (1^1 + 2^2 + 2^2) \times 3^3 - 3^3$$
$$:= (2! + 2! + 3!) \times 4! - 4! \quad = (2^2 + 2^2) \times 3^3 + 4^4 - 4^4$$
$$:= -(2! + 2!) \times 3! + 5! + 5! = (2^2 + 2^2) \times 3^3 + 5^5 - 5^5.$$

$$217 := 1! + (1! + 2!) \times 2! \times 3! \times 3! = 1^1 + (1^1 + 2^2 + 2^2) \times 3^3 - 3^3$$
$$:= 1! + (1! + (2! + 2!) \times 2!) \times 4! = 1^1 - (1^1 + 2^2) \times (2^2 + 2^2) + 4^4.$$

$$218 := 2! - 2! \times 3! \times (3! - 4!) = 2^2 \times 2^2 - 3^3 - 3^3 + 4^4.$$
$$219 := 1! + (1! + 2! + 3!) \times 4! + 2! = -1^1 - 1^1 - 2^2 - 3^3 + 4^4 - 2^2.$$
$$220 := (1! - 3!) \times 2! \times (2! - 4!) = -1^1 - 3^3 - 2^2 - 2^2 + 4^4.$$
$$221 := -1! + (1! + 4! + 2! \times 3!) \times 3! = -(1^1 + 1^1) \times 4^4 + 2^2 + 3^3 \times 3^3.$$

$$222 := (1! + (1! - 3!) \times (2! - 4!)) \times 2! = 1^1 \times 1^1 - 3^3 - 2^2 + 4^4 - 2^2.$$
$$224 := -1! + (1! + 2! + 3!) \times (1! + 4!) = -1^1 - 1^1 - 2^2 - 3^3 + 1^1 + 4^4.$$
$$225 := (1! + 2! + 3!) \times (1! + 4!) = -1^1 - 2^2 - 3^3 + 1^1 + 4^4.$$

$$226 := 1! + (1! + 2! + 3!) \times (1! + 4!) = 1^1 + 1^1 - 2^2 - 3^3 - 1^1 + 4^4.$$
$$227 := -1! + (1! + 3!) \times 3! \times 3! - 4! = -1^1 - 1^1 - 3^3 - 3^3 + 3^3 + 4^4.$$
$$228 := (1! + 3!) \times 3! \times 3! - 4! = -1^1 - 3^3 - 3^3 + 3^3 + 4^4.$$

$$229 := 1! + (1! + 3!) \times 3! \times 3! - 4! = (-1^1 \times 1^1 - 3^3 + 3^3) \times 3^3 + 4^4$$
$$:= -1! + (1! - 3!) \times (2! - 2! \times 4!) = -(1^1 \times 1^1) \times 3^3 - 2^2 + 2^2 + 4^4.$$

$$230 := (1! - 3!) \times (2! - 2! \times 4!) = 1^1 - 3^3 + 2^2 - 2^2 + 4^4.$$
$$234 := (1! + 1! + 1! + 3!) \times (2! + 4!) = 1^1 + 1^1 - 1^1 - 3^3 + 2^2 + 4^4.$$
$$235 := (1! - 2! \times 4!) \times (1! - 3!) = 1^1 + 2^2 + 4^4 + 1^1 - 3^3.$$

$$236 := ((3! - 1!) \times 4! - 2!) \times 2! = -3^3 - 1^1 + 4^4 + 2^2 + 2^2$$
$$:= (5! - 3! + 1!) \times 2! + 3! = 5^5 + 3^3 \times (1^1 - 2^2 \times 3^3).$$

$$237 := 1! - ((1! - 3!) \times 4! + 2!) \times 2! = -(1^1 \times 1^1) \times 3^3 + 4^4 + 2^2 + 2^2.$$
$$238 := (-1! + 3!) \times 4! \times 2! - 2! = 1^1 - 3^3 + 4^4 + 2^2 + 2^2.$$

$$239 := -1! + (1! + 2! + 2!) \times 2! \times 4! = -1^1 - (1^1 + 2^2) \times 2^2 + 2^2 + 4^4$$
$$:= -1! + (1! + 1! + 2! + 3!) \times 4! = (1^1 + 1^1) \times (1^1 + 2^2) - 3^3 + 4^4.$$

$$240 := (1! + 2! + 2!) \times 2! \times 4! = -(1^1 + 2^2) \times 2^2 + 2^2 + 4^4$$
$$:= (2! + 2!) \times 2! \times (3! + 4!) = 2^2 \times 2^2 \times (2^2 + 3^3) - 4^4.$$

$$241 := 1! + (2! + 2! + 3!) \times 4! = (-1^1 + 2^2) \times 2^2 - 3^3 + 4^4.$$
$$242 := 1! + 1! + (3! + 4!) \times (2! + 3!) = (1^1 + 1^1) \times (-3^3 + 4^4 - 2^2 \times 3^3).$$
$$243 := 1! + (1! - 3! \times 2!) \times (2! - 4!) = -1^1 - 1^1 - 3^3 + 2^2 \times 2^2 + 4^4.$$
$$244 := ((3! - 1!) \times 4! + 2!) \times 2! = -3^3 - 1^1 + 4^4 + 2^2 \times 2^2.$$
$$245 := 1! - ((1! - 3!) \times 4! - 2!) \times 2! = -1^1 \times 1^1 \times 3^3 + 4^4 + 2^2 \times 2^2.$$

$$246 := (1! + (1! + 3!) \times 3! - 2!) \times 3! = -1^1 + (1^1 + 3^3 + 3^3) \times 2^2 + 3^3$$
$$:= (1! - (1! - 3!) \times 4! + 2!) \times 2! = 1^1 \times 1^1 - 3^3 + 4^4 + 2^2 \times 2^2.$$

$$248 := (1! - (1! - 3!) \times 3!) \times (2! + 3!) = 1^1 + (1^1 + 3^3 + 3^3) \times 2^2 + 3^3.$$
$$250 := -1! - 1! + 3! \times (-3! + 2! \times 4!) = -1^1 - 1^1 + 3^3 - 3^3 - 2^2 + 4^4.$$
$$251 := -1! + 3! \times (-3! + 2! \times 4!) \quad = -1^1 - 3^3 + 3^3 - 2^2 + 4^4.$$

$$252 := 3! \times (-3! + 2! \times 4!) \quad = 3^3 - 3^3 - 2^2 + 4^4.$$
$$253 := (2! \times 4! - 3!) \times 3! + 1! = -2^2 + 4^4 - 3^3 + 3^3 + 1^1.$$

$$254 := 1! + (1! - 4!) \times (1! - 3! - 3!) = (-1^1 - 1^1 + 4^4) \times 1^1 - 3^3 + 3^3$$
$$:= 1! + 1! + (2! \times 4! - 3!) \times 3! \quad = 1^1 + 1^1 - 2^2 + 4^4 + 3^3 - 3^3.$$

$$256 := (2! + 3! + 4!) \times (2! + 3!) \quad = 2^2 + 3^3 + 4^4 - 2^2 - 3^3.$$
$$257 := -1! + (1! - 3! + 4! + 4!) \times 3! = 1^1 + (1^1 + 3^3) \times 4^4 - 4^4 \times 3^3.$$
$$258 := (1! + (1! + 1!) \times 4! - 3!) \times 3! = (1^1 + 1^1) \times 1^1 + 4^4 + 3^3 - 3^3.$$
$$259 := 1! + (1! + 2! \times 4! - 3!) \times 3! \quad = -1^1 \times 1^1 + 2^2 + 4^4 - 3^3 + 3^3.$$

$$260 := (-1! - 1! + 3! + 3!) \times (2! + 4!) = (1^1 \times 1^1 + 3^3 - 3^3) \times 2^2 + 4^4$$
$$:= -1! - 1! - 2! + 4! + 5! + 5! \quad = 1^1 \times 1^1 \times 2^2 + 4^4 + 5^5 - 5^5.$$

$$261 := -1! - 2! + 4! + 5! + 5! = 1^1 + 2^2 + 4^4 + 5^5 - 5^5.$$

$$262 := -1! - 1! + (4! - 2!) \times (3! + 3!) = 1^1 + 1^1 + 4^4 + 2^2 + 3^3 - 3^3$$
$$:= -1! \times 1! \times 2! + 4! + 5! + 5! \quad = 1^1 + 1^1 + 2^2 + 4^4 + 5^5 - 5^5.$$

$$263 := -1! + 2! \times (-2! + 4!) \times 3! = -(1^1 + 2^2) \times 2^2 + 4^4 + 3^3.$$

$$264 := 2! \times (-2! \times 3! + 3! \times 4!) = 2^2 + 2^2 + 3^3 - 3^3 + 4^4$$
$$:= 2! + 4! - 2! + 5! + 5! \quad = 2^2 + 4^4 + 2^2 + 5^5 - 5^5.$$

$$265 := 1! + (1! + 2! + 2! + 3!) \times 4! \quad = -1^1 - 1^1 - 2^2 \times 2^2 + 3^3 + 4^4.$$
$$266 := (1! + 3! \times (4! - 2!)) \times 2! \quad = -1^1 + 3^3 + 4^4 - 2^2 \times 2^2.$$
$$267 := 1! + (1! + 3! \times (4! - 2!)) \times 2! = 1^1 \times 1^1 \times 3^3 + 4^4 - 2^2 \times 2^2.$$

$$268 := (1! + 1!) \times (2! - (2! - 4!) \times 3!) = 1^1 \times 1^1 - 2^2 \times 2^2 + 4^4 + 3^3.$$
$$269 := -1! + (1! + 2! + 3!) \times (4! + 3!) = (1^1 + 1^1) \times (-2^2 \times 3^3 + 4^4) - 3^3.$$
$$270 := (-1! \times 1! - 2! + 2! \times 4!) \times 3! \quad = -1^1 + (1^1 - 2^2) \times 2^2 + 4^4 + 3^3.$$

$$271 := 1! - (1! - 3!) \times (3! + 4! + 4!) = (1^1 + 1^1 + 3^3) \times 3^3 - 4^4 - 4^4$$
$$:= 1! - (1! + 2! - 2! \times 4!) \times 3! \quad = -(1^1 + 1^1) \times 2^2 - 2^2 + 4^4 + 3^3.$$

$$272 := 2! \times (-2! - 3! + 3! \times 4!) \quad = 2^2 \times 2^2 + 3^3 - 3^3 + 4^4.$$
$$273 := 1! - ((1! - 4!) \times 3! + 2!) \times 2! = -1^1 - 1^1 + 4^4 + 3^3 - 2^2 - 2^2.$$
$$274 := 2! \times 3! \times (4! - 1!) - 2! \quad = -2^2 + 3^3 + 4^4 - 1^1 - 2^2.$$
$$275 := -1! + (-2! + 2! \times 4!) \times 3! \quad = -1^1 \times 2^2 - 2^2 + 4^4 + 3^3.$$

$$276 := (-1! \times 2! + 2! \times 4!) \times 3! = 1^1 - 2^2 - 2^2 + 4^4 + 3^3.$$
$$277 := 1! + 2! \times 3! \times (4! - 1!) \quad = -1^1 - 2^2 + 3^3 + 4^4 - 1^1.$$
$$278 := (1! + 3! \times (4! - 1!)) \times 2! = 1^1 \times 3^3 + 4^4 - 1^1 - 2^2.$$

$$279 := 1! + (1! - 3! + 3! \times 4!) \times 2! \qquad = (1^1 + 1^1) \times 3^3 - 3^3 + 4^4 - 2^2.$$
$$280 := (1! + 1!) \times (2! + 3! \times (4! - 1!)) = 1^1 + 1^1 - 2^2 + 3^3 + 4^4 - 1^1.$$
$$281 := (-1! + 2! \times 4!) \times 3! - 1! \qquad = 1^1 - 2^2 + 4^4 + 3^3 + 1^1.$$

$$282 := -3! + (3! + 3!) \times 1! \times 4! = 3^3 + 3^3 - 3^3 - 1^1 + 4^4$$
$$:= (2! \times 4! - 2! + 1!) \times 3! \quad = 2^2 + 4^4 - 2^2 - 1^1 + 3^3.$$

$$283 := 1! - 3! + (3! + 3!) \times 4! \qquad = (1^1 + 3^3 - 3^3) \times 3^3 + 4^4$$
$$:= -1! + 2! \times (-2! + 3! \times 4!) = (1^1 + 2^2 - 2^2) \times 3^3 + 4^4.$$

$$284 := 2! - 3! + 3! \times 2! \times 4! \quad = (2^2 \times 3^3 + 3^3) \times 2^2 - 4^4$$
$$:= (1! \times 3! \times 4! - 2!) \times 2! = 1^1 + 3^3 + 4^4 + 2^2 - 2^2.$$

$$285 := -1! \times 1! - 2! + 2! \times 3! \times 4! = 1^1 + 1^1 + 2^2 - 2^2 + 3^3 + 4^4.$$

$$286 := (4! \times 3! - 1!) \times (1! + 1!) = 4^4 + 3^3 + 1^1 + 1^1 + 1^1$$
$$:= -1! - 1! + 2! \times 3! \times 4! \quad = -1^1 \times 1^1 + 2^2 + 3^3 + 4^4.$$

$$290 := 1! \times 2! + 2! \times 3! \times 4! = -1^1 + 2^2 + 2^2 + 3^3 + 4^4.$$

$$294 := -3! + 3! \times (2! + 2! \times 4!) = 3^3 + 3^3 - 2^2 \times 2^2 + 4^4$$
$$:= 1! \times 2! \times 4! \times 3! + 3! \qquad = -1^1 + 2^2 \times 4^4 - 3^3 \times 3^3.$$

$$295 := 1! + 3! + 3! \times 4! \times 2! \qquad = -1^1 \times 3^3 \times 3^3 + 4^4 \times 2^2.$$
$$296 := 2! + 3! + 3! \times (4! + 4!) \qquad = -2^2 \times (3^3 + 3^3) + 4^4 + 4^4.$$
$$297 := 1! + (1! + 3! \times 3!) \times (2! + 3!) = ((1^1 + 1^1) \times 3^3 + 3^3) \times 2^2 - 3^3.$$
$$298 := (1! + 4!) \times 3! \times 2! - 2! \qquad = -1^1 + 4^4 + 3^3 + 2^2 \times 2^2.$$

$$299 := -1! + (2! + 2! \times 4!) \times 3! \qquad = 1^1 \times 2^2 \times 2^2 + 4^4 + 3^3.$$
$$302 := 2! + 2! \times (3! + 3! \times 4!) \qquad = -2^2 - 2^2 + 3^3 + 3^3 + 4^4.$$
$$304 := (1! + 1!) \times (2! + 3! + 3! \times 4!) = -1^1 - 1^1 - 2^2 + 3^3 + 3^3 + 4^4.$$
$$305 := -1! + (1! + 2! \times 3!) \times 4! - 3! = -1^1 \times 1^1 - 2^2 + 3^3 + 4^4 + 3^3.$$

$$306 := (1! + 4!) \times 2! \times 3! + 3! \qquad = 1^1 \times 4^4 - 2^2 + 3^3 + 3^3.$$
$$307 := 1! + (1! + 4!) \times 2! \times 3! + 3! \quad = 1^1 \times 1^1 + 4^4 - 2^2 + 3^3 + 3^3.$$
$$308 := (1! + 1! + 3! + 3!) \times (4! - 2!) = 1^1 + 1^1 + 3^3 + 3^3 + 4^4 - 2^2.$$
$$310 := (2! + 4!) \times (3! + 3!) - 2! \qquad = 2^2 + 4^4 + 3^3 + 3^3 - 2^2.$$

$$311 := -1! + (1! + 3! + 3!) \times 4! \qquad = 1^1 \times 1^1 + 3^3 + 3^3 + 4^4.$$
$$313 := 1! + (3! + 3!) \times (2! + 4!) \qquad = -1^1 + 3^3 + 3^3 + 2^2 + 4^4.$$
$$316 := (1! + 1!) \times (3! \times 3! + 2! + 5!) = -1^1 + (1^1 - 3^3) \times 3^3 \times 2^2 + 5^5.$$
$$322 := -1! - 1! + 3! \times (3! + 2! \times 4!) = (1^1 \times 1^1 - 3^3) \times 3^3 + 2^2 \times 4^4.$$

$$323 := -1! + (1! + 2! + 3!) \times 3! \times 3! \quad = -1^1 \times 1^1 + 2^2 \times (3^3 + 3^3 + 3^3)$$
$$:= -1! + (1! + 2!) \times 3! \times (4! - 3!) = -(1^1 + 1^1) \times (2^2 \times 3^3 - 4^4) + 3^3.$$

$$328 := (-1! + (1! + 3!) \times 3!) \times (3! + 2!) = (1^1 \times 1^1 + 3^3 + 3^3 + 3^3) \times 2^2$$
$$:= 1! \times 1! + (4! \times 2! + 3!) \times 3! \qquad = -(1^1 + 1^1) \times 4^4 + (2^2 + 3^3) \times 3^3.$$

$$335 := -1! + (1! + 1! + 3! + 3!) \times 4! = -((1^1 + 1^1) \times (1^1 - 3^3)) + 3^3 + 4^4$$
$$:= -1! + (1! + 1! + 2! \times 3!) \times 4! = -1^1 - 1^1 + (-1^1 + 2^2) \times 3^3 + 4^4.$$

$$336 := (-2! - 3! - 2! + 4!) \times 4! = 2^2 \times (-3^3 \times 2^2 + 4^4) - 4^4$$
$$:= (1! \times 2! + 3! + 3!) \times 4! \quad = -1^1 + 2^2 \times 3^3 - 3^3 + 4^4.$$

$$337 := 1! + (2! + 3! + 3!) \times 4! \qquad = 1^1 \times 2^2 \times 3^3 - 3^3 + 4^4.$$
$$338 := (1! + 3! + 3!) \times (2! + 4!) \qquad = 1^1 - 3^3 + 3^3 \times 2^2 + 4^4.$$
$$339 := 1! + (1! + 3! + 3!) \times (2! + 4!) \quad = 1^1 + 1^1 - 3^3 + 3^3 \times 2^2 + 4^4.$$
$$340 := (1! + 1!) \times (2! + (1! + 3!) \times 4!) = -(1^1 \times 1^1 - 2^2) \times (1^1 + 3^3) + 4^4.$$

$$341 := -1! + (1! + 3!) \times 4! \times 2! + 3! \quad = (1^1 + 1^1) \times 3^3 + 4^4 + 2^2 + 3^3.$$
$$342 := 3! + 2! \times (1! + 3!) \times 4! \qquad = (3^3 - 2^2) \times (-1^1 + 3^3) - 4^4.$$
$$343 := (1! \times 1! + 3!) \times (1! + 2! \times 4!) \quad = (1^1 + 1^1 + 3^3) \times (-1^1 + 2^2) + 4^4.$$
$$349 := -1! + (1! + 3!) \times (2! + 2! \times 4!) = 1^1 \times 1^1 + (3^3 - 2^2) \times 2^2 + 4^4.$$

$$350 := (1! \times 1! + 3!) \times (2! + 2! \times 4!) \qquad = 1^1 + 1^1 + (3^3 - 2^2) \times 2^2 + 4^4.$$
$$351 := 1! + (1! + 3!) \times (2! + 2! \times 4!) \qquad = -1^1 + (1^1 + 3^3 - 2^2) \times 2^2 + 4^4.$$
$$352 := 2! \times (2! + 3!) \times (-2! + 4!) \qquad = 2^2 \times (-2^2 + 3^3) + 2^2 + 4^4.$$
$$356 := (1! + 1!) \times (-2! + 3! \times (3! + 4!)) = -(1^1 + 1^1) \times (2^2 - 3^3 - 3^3) + 4^4.$$

$$358 := (1! + (1! + 3!) \times 2!) \times 4! - 2! = -1^1 - 1^1 + 3^3 \times 2^2 + 4^4 - 2^2.$$
$$359 := -1! + (1! + 2! + 2! \times 3!) \times 4! = -1^1 \times 1^1 - 2^2 + 2^2 \times 3^3 + 4^4.$$
$$360 := (1! + 2! + 2! \times 3!) \times 4! \qquad = -1^1 \times 2^2 + 2^2 \times 3^3 + 4^4.$$
$$361 := 1! + (1! + 2! + 2! \times 3!) \times 4! \quad = 1^1 \times 1^1 - 2^2 + 2^2 \times 3^3 + 4^4.$$

$$362 := (1! + 1!) \times (1! + 3! \times (3! + 4!)) = -(1^1 + 1^1) \times (1^1 - 3^3 - 3^3) + 4^4$$
$$:= (1! + (1! + 3!) \times 2!) \times 4! + 2! \quad = 1^1 + 1^1 + 3^3 \times 2^2 + 4^4 - 2^2.$$

$$363 := -1! + (1! + 3!) \times 2! \times (2! + 4!) = -1^1 + (1^1 + 3^3) \times 2^2 - 2^2 + 4^4.$$

$$364 := (2! \times 3! + 2!) \times (2! + 4!) = (2^2 + 3^3 - 2^2) \times 2^2 + 4^4$$
$$:= (1! + 3!) \times 2! \times (2! + 4!) = (1^1 + 3^3) \times 2^2 - 2^2 + 4^4.$$

$$365 := 1! + (1! + 3!) \times 2! \times (2! + 4!) = 1^1 + (1^1 + 3^3) \times 2^2 - 2^2 + 4^4.$$
$$366 := (1! + (4! + 3!) \times 2!) \times 3! \qquad = 1^1 - 4^4 + (3^3 - 2^2) \times 3^3.$$
$$367 := 1! + (1! + (4! + 3!) \times 2!) \times 3! = 1^1 + 1^1 - 4^4 + (3^3 - 2^2) \times 3^3.$$
$$368 := (-1! + 4!) \times 2! \times (2! + 3!) \qquad = 1^1 \times 4^4 + 2^2 + 2^2 \times 3^3.$$

$$369 := 1! - (1! - 4!) \times 2! \times (2! + 3!) \quad = 1^1 \times 1^1 + 4^4 + 2^2 + 2^2 \times 3^3.$$
$$370 := (1! - (1! - 4!) \times (2! + 3!)) \times 2! \quad = 1^1 + 1^1 + 4^4 + 2^2 + 3^3 \times 2^2.$$
$$372 := (1! + 1!) \times (-3! + (2! + 3!) \times 4!) = (1^1 + 1^1) \times (3^3 + 2^2 + 3^3) + 4^4.$$
$$376 := (4! \times 2! - 1!) \times (2! + 3!) \quad = 4^4 + 2^2 \times (-1^1 + 2^2 + 3^3).$$

$$380 := 2! \times (-2! + (2! + 3!) \times 4!) \quad = 2^2 \times 2^2 + 2^2 \times 3^3 + 4^4$$
$$:= (1! + 1!) \times (-2! + (2! + 3!) \times 4!) = 1^1 \times 1^1 \times 2^2 \times (2^2 + 3^3) + 4^4.$$

$$381 := -1! + (-1! + 4! \times (2! + 3!)) \times 2! = 1^1 \times 1^1 + 4^4 + (2^2 + 3^3) \times 2^2.$$
$$382 := -1! - 1! + 2! \times (2! + 3!) \times 4! \quad = 1^1 + 1^1 + 2^2 \times (2^2 + 3^3) + 4^4.$$
$$383 := -1! \times 1! + (2! + 3!) \times 2! \times 4! \quad = -1^1 + (1^1 + 2^2 + 3^3) \times 2^2 + 4^4.$$
$$386 := 1! + 1! + (2! + 3!) \times 2! \times 4! \quad = -1^1 + (1^1 + 2^2) \times 3^3 - 2^2 + 4^4.$$
$$387 := 1! + (1! + (2! + 3!) \times 4!) \times 2! \quad = (1^1 \times 1^1 + 2^2) \times 3^3 + 4^4 - 2^2.$$

$$389 := -1! + (1! + 2! \times 3!) \times (3! + 4!) = -1^1 - 1^1 + 2^2 \times 3^3 + 3^3 + 4^4.$$
$$390 := (1! + 2! \times 3!) \times (3! + 4!) \quad = -1^1 + 2^2 \times 3^3 + 3^3 + 4^4.$$
$$391 := 1! + (1! + 2! \times 3!) \times (3! + 4!) \quad = (1^1 + 1^1 + 2^2) \times 3^3 - 3^3 + 4^4.$$
$$395 := -1! + (1! + 2!) \times 3! \times (4! - 2!) = (1^1 \times 1^1 + 2^2) \times 3^3 + 4^4 + 2^2.$$
$$396 := ((1! + 1! + 3!) \times 4! + 3!) \times 2! \quad = (1^1 + 1^1) \times (-3^3 + 4^4 - 3^3 - 2^2).$$

$$400 := (2! + 3!) \times (2! + 4! + 4!) \quad = -2^2 \times 3^3 - 2^2 + 4^4 + 4^4$$
$$:= (1! + 1! + 3!) \times (2! + 4! + 4!) = -(1^1 \times 1^1 + 3^3) \times 2^2 + 4^4 + 4^4.$$

$$406 := -1! - 1! + 5! + 3! \times (4! + 4!) = -(1^1 + 1^1) \times 5^5 + 3^3 \times 4^4 - 4^4.$$

$$407 := -1! + (1! - 3! - 2! + 4!) \times 4! = -1^1 + (1^1 - 3^3) \times 2^2 + 4^4 + 4^4$$
$$:= -1! + (1! + 3!) \times 4! + 5! + 5! = 1^1 - (1^1 - 3^3) \times 4^4 - 5^5 - 5^5.$$

$$408 := 2! \times (2! + 3!) \times 4! + 4! = 2^2 - 2^2 \times 3^3 + 4^4 + 4^4$$
$$:= (1! - 3! - 2! + 4!) \times 4! = (1^1 - 3^3) \times 2^2 + 4^4 + 4^4.$$

$$409 := 1! + (1! - 3! - 2! + 4!) \times 4! \quad = 1^1 + (1^1 - 3^3) \times 2^2 + 4^4 + 4^4.$$
$$418 := (-1! + (1! + 3!) \times (4! + 3!)) \times 2! = (1^1 + 1^1) \times 3^3 + 4^4 + 3^3 \times 2^2.$$

$$419 := -1! + (1! + 3!) \times (3! \times 3! + 4!) = -(1^1 + 1^1) \times 3^3 + 3^3 \times 3^3 - 4^4$$
$$:= -1! + (1! + 3!) \times 2! \times (3! + 4!) = (1^1 + 1^1 + 3^3 - 2^2) \times 3^3 - 4^4.$$

$$420 := 3! \times (-2! + 2! \times 4! + 4!) \quad = (-3^3 + 2^2) \times 2^2 + 4^4 + 4^4.$$
$$426 := (1! \times 1! + 2!) \times (-2! + 3! \times 4!) = (1^1 + 1^1) \times (-2^2 \times 2^2 - 3^3 + 4^4).$$
$$430 := -1! \times 1! \times 2! + (-3! + 4!) \times 4! = -1^1 + (1^1 - 2^2) \times 3^3 + 4^4 + 4^4.$$
$$431 := 1! - 2! - (3! - 4!) \times 4! \quad = (1^1 - 2^2) \times 3^3 + 4^4 + 4^4.$$

$$
\begin{aligned}
432 &:= (-3! + 4!) \times 4! - 2! + 2! && = (3^3 + 4^4 - 4^4) \times 2^2 \times 2^2.\\
434 &:= 2! + 4! \times (3! + 3! + 3!) && = -2^2 \times 4^4 + (3^3 + 3^3) \times 3^3.\\
439 &:= 1! + (1! + 2!) \times 3! \times 4! + 3! && = (1^1 + 1^1) \times (2^2 - 3^3 + 4^4) - 3^3.\\
442 &:= (-1! + (1! + 2!) \times 3!) \times (2! + 4!) && = (1^1 + 1^1 + 2^2) \times (3^3 + 2^2) + 4^4.
\end{aligned}
$$

$$
\begin{aligned}
443 &:= -1! + ((1! + 2!) \times 4! + 2!) \times 3! && = -1^1 + (1^1 - 2^2) \times (-4^4 + 2^2 \times 3^3).\\
444 &:= ((1! + 2!) \times 4! + 2!) \times 3! && = (1^1 - 2^2) \times (-4^4 + 2^2 \times 3^3).\\
445 &:= 1! + ((1! + 2!) \times 4! + 2!) \times 3! && = 1^1 - (1^1 - 2^2) \times (4^4 - 2^2 \times 3^3).\\
449 &:= -1! + (1! + 2!) \times 3! \times (4! + 1!) && = (1^1 + 1^1) \times (-2^2 - 3^3 + 4^4) - 1^1.
\end{aligned}
$$

$$
\begin{aligned}
450 &:= (2! + 1!) \times (3! + 3! \times 4!) && = 2^2 - (1^1 - 3^3) \times 3^3 - 4^4.\\
451 &:= 1! + (1! + 2!) \times 3! \times (4! + 1!) && = -(1^1 + 1^1) \times (2^2 + 3^3 - 4^4) + 1^1.\\
453 &:= (1! + (1! + 4!) \times 3!) \times (1! + 2!) && = (1^1 + 1^1) \times (4^4 - 3^3) - 1^1 - 2^2.\\
454 &:= (1! + (1! + 2!) \times 3!) \times 4! - 2! && = (1^1 + 1^1 - 2^2) \times (3^3 - 4^4) - 2^2.
\end{aligned}
$$

$$
\begin{aligned}
456 &:= (1! + 1! + 1!) \times 3! \times 4! + 4! && = -(1^1 + 1^1) \times (1^1 + 3^3) + 4^4 + 4^4\\
&:= ((1! \times 1! + 2!) \times 3! + 1!) \times 4! && = (1^1 + 1^1 - 2^2) \times (3^3 + 1^1 - 4^4).
\end{aligned}
$$

$$
\begin{aligned}
457 &:= 1! + (1! + 4!) \times (4! - 3!) + 3! && = -1^1 \times 1^1 + 4^4 + 4^4 - 3^3 - 3^3\\
&:= 1! + (1! + (2! + 1!) \times 3!) \times 4! && = -1^1 + (1^1 - 2^2 + 1^1) \times (3^3 - 4^4).
\end{aligned}
$$

$$
\begin{aligned}
458 &:= 1! + 1! - (3! - 4!) \times 4! + 4! && = (1^1 + 1^1) \times (-3^3 - 4^4 + 4^4 + 4^4)\\
&:= (1! + (1! + 2!) \times 3!) \times 4! + 2! && = (1^1 + 1^1) \times (-2^2 - 3^3 + 4^4 + 2^2)\\
&:= 1! + 1! - (4! - 5!) \times 3! - 5! && = (1^1 + 1^1) \times (4^4 + 5^5 - 3^3 - 5^5).
\end{aligned}
$$

$$
\begin{aligned}
462 &:= (4! - 3!) \times (2! + 4!) - 3! && = 4^4 - 3^3 + 2^2 + 4^4 - 3^3.\\
467 &:= -1! + ((1! + 2!) \times 4! + 3!) \times 3! && = -1^1 - 1^1 - 2^2 - 4^4 + 3^3 \times 3^3.
\end{aligned}
$$

$$
\begin{aligned}
468 &:= (2! \times 3! + 3!) \times (2! + 4!) = 2^2 \times (3^3 + 3^3) - 2^2 + 4^4\\
&:= ((1! + 2!) \times 4! + 3!) \times 3! = -1^1 - 2^2 - 4^4 + 3^3 \times 3^3.
\end{aligned}
$$

$$
\begin{aligned}
469 &:= 1! + (1! + 2!) \times (2! + 4!) \times 3! && = (1^1 + 1^1) \times (-2^2 - 2^2 + 4^4) - 3^3.\\
474 &:= (1! + (1! + 2!) \times (2! + 4!)) \times 3! && = (1^1 + 1^1) \times (2^2 + 2^2 + 4^4 - 3^3).\\
479 &:= -1! \times 1! + (2! - 3! + 4!) \times 4! && = -1^1 - 1^1 - 2^2 - 3^3 + 4^4 + 4^4.
\end{aligned}
$$

$$
\begin{aligned}
480 &:= (-1! \times 1! \times 2! - 2! + 4!) \times 4! && = -(1^1 + 1^1) \times 2^2 \times 2^2 + 4^4 + 4^4\\
&:= (1! + 1! + 2!) \times (-4! + 4! \times 3!) && = -1^1 \times 1^1 - 2^2 + 4^4 + 4^4 - 3^3.
\end{aligned}
$$

$$
\begin{aligned}
481 &:= 1! + (2! - 3! + 4!) \times 4! && = -1^1 \times 2^2 - 3^3 + 4^4 + 4^4.\\
485 &:= -1! + (1! + 2! + 4!) \times (-3! + 4!) && = (-1^1 \times 1^1 + 2^2) \times 4^4 - 3^3 - 4^4.\\
486 &:= (1! + 1! + 4! + 1!) \times (-3! + 4!) && = 1^1 + 1^1 + 4^4 - 1^1 - 3^3 + 4^4.\\
487 &:= 1! - (1! + 2! + 4!) \times (3! - 4!) && = -1^1 - 1^1 + 2^2 + 4^4 - 3^3 + 4^4.
\end{aligned}
$$

$$490 := (1! + 1! - 4!) \times (2! - 4!) + 3! \quad = 1^1 \times 1^1 + 4^4 + 2^2 + 4^4 - 3^3.$$
$$500 := (4! + 1!) \times (-2! - 2! + 4!) \quad = 4^4 + (1^1 - 2^2) \times 2^2 + 4^4.$$
$$502 := -1! - 1! + (-1! - 2! + 4!) \times 4! = -(1^1 + 1^1) \times (1^1 + 2^2) + 4^4 + 4^4.$$
$$503 := -1! \times 1! + (-1! - 2! + 4!) \times 4! = -1^1 - (1^1 + 1^1) \times 2^2 + 4^4 + 4^4.$$

$$504 := (1! - 2! - 2! + 4!) \times 4! \quad = -1^1 \times 2^2 - 2^2 + 4^4 + 4^4$$
$$:= (2! \times 4! - 3!) \times (3! + 3!) = 2^2 - 4^4 + 3^3 + 3^3 \times 3^3.$$

$$505 := 1! + (1! - 2! - 2! + 4!) \times 4! = 1^1 \times 1^1 - 2^2 - 2^2 + 4^4 + 4^4.$$
$$506 := (4! - 1!) \times (4! \times 1! - 2!) \quad = 4^4 - 1^1 + 4^4 - 1^1 - 2^2.$$
$$507 := 1! - (1! - 4!) \times (4! - 2!) \quad = -1^1 \times 1^1 + 4^4 + 4^4 - 2^2.$$

$$508 := (2! - 4!) \times (2! - 4!) + 4! = -2^2 - 4^4 + 2^2 \times 4^4 - 4^4$$
$$:= 2! + (1! - 4!) \times (2! - 4!) = (2^2 - 1^1) \times 4^4 - 2^2 - 4^4.$$

$$510 := (-1! \times 1! - 3! + 4!) \times (3! + 4!) = -1^1 - 1^1 - 3^3 + 4^4 + 3^3 + 4^4.$$
$$511 := 1! - (1! + 3! - 4!) \times (3! + 4!) \quad = -1^1 \times 1^1 - 3^3 + 4^4 + 3^3 + 4^4.$$
$$516 := -3! - 3! + 4! \times (4! - 2!) \quad = -3^3 + 3^3 + 4^4 + 4^4 + 2^2.$$
$$520 := (1! + 1! + 4!) \times (-2! - 2! + 4!) = -(1^1 + 1^1) \times (4^4 - 2^2) + 2^2 \times 4^4.$$

$$524 := -2! - 2! + (-2! + 4!) \times 4! \quad = 2^2 + 2^2 + 2^2 + 4^4 + 4^4.$$
$$525 := -1! \times 1! - 2! + (-2! + 4!) \times 4! = 1^1 - (1^1 - 2^2) \times 2^2 + 4^4 + 4^4.$$
$$526 := -1! \times 1! \times 2! + (-2! + 4!) \times 4! = -1^1 - 1^1 + 2^2 \times 2^2 + 4^4 + 4^4.$$
$$527 := 1! - 2! - (2! - 4!) \times 4! \quad = -1^1 + 2^2 \times 2^2 + 4^4 + 4^4.$$

$$528 := (-2! + 2! \times 4! - 4!) \times 4! = 2^2 \times (2^2 + 4^4) - 4^4 - 4^4$$
$$:= ((1! - 2!) \times 2! + 4!) \times 4! = 1^1 \times 2^2 \times 2^2 + 4^4 + 4^4$$
$$:= 4! \times (3! \times 2! \times 2! - 2!) \quad = (4^4 - (3^3 + 2^2) \times 2^2) \times 2^2.$$

$$529 := -1! + 2! + (-2! + 4!) \times 4! \quad = 1^1 + 2^2 \times 2^2 + 4^4 + 4^4.$$
$$530 := 1! \times 1! \times 2! - (2! - 4!) \times 4! = 1^1 + 1^1 + 2^2 \times 2^2 + 4^4 + 4^4.$$
$$531 := 1! \times 1! + 2! - (2! - 4!) \times 4! = -1^1 + (1^1 + 2^2) \times 2^2 + 4^4 + 4^4.$$

$$532 := 2! + 2! - (2! - 4!) \times 4! \quad = 2^2 \times 2^2 + 2^2 + 4^4 + 4^4.$$
$$533 := -1! \times 1! + 3! + (-2! + 4!) \times 4! = -1^1 - 1^1 + 3^3 - 2^2 + 4^4 + 4^4.$$
$$534 := (-1! \times 2! + 4!) \times 4! + 3! \quad = -1^1 - 2^2 + 4^4 + 4^4 + 3^3.$$
$$535 := 1! - (2! - 4!) \times 4! + 3! \quad = -1^1 \times 2^2 + 4^4 + 4^4 + 3^3.$$

$$536 := 1! + (1! - 4!) \times (1! - 4!) + 3! = -1^1 - 1^1 + 4^4 - 1^1 + 4^4 + 3^3$$
$$:= 1! + 1! + 3! + 4! \times (4! - 2!) \quad = 1^1 \times 1^1 + 3^3 + 4^4 + 4^4 - 2^2.$$

$$539 := -1! \times 1! - 3! \times 3! + 4! \times 4! = (1^1 + 1^1) \times 3^3 - 3^3 + 4^4 + 4^4.$$

$$540 := (1!+1!+1!)\times 3!\times(4!+3!) = 1^1+(1^1+1^1)\times(3^3+4^4)-3^3$$
$$:= (1!+(1!+3!)\times 2!)\times 3!\times 3! = (-1^1-1^1+3^3-2^2)\times 3^3-3^3.$$

$$541 := 1!-(1!-4!)\times 4!-2!\times 3! = -1^1-1^1+4^4+4^4+2^2+3^3.$$
$$543 := -1!+(1!+4!)\times(4!-2!)-3! = 1^1\times 1^1\times 4^4+4^4+2^2+3^3.$$
$$544 := (-1!+4!)\times 4!-3!-2! = 1^1+4^4+4^4+3^3+2^2.$$
$$545 := 1!+(1!+4!)\times(4!-2!)-3! = 1^1+1^1+4^4+4^4+2^2+3^3.$$

$$547 := 1!+(1!-2!+4!)\times 4!-3! = (1^1+1^1)\times 2^2+4^4+4^4+3^3.$$
$$550 := (-1!+(-1!+4!)\times 2!\times 3!)\times 2! = (1^1+1^1)\times(4^4-2^2+3^3-2^2).$$
$$551 := -1!+(-1!+(3!+3!)\times 2!)\times 4! = 1^1-(1^1-3^3)\times(3^3+2^2)-4^4.$$
$$552 := (2!-3!)\times 3!+4!\times 4! = 2^2\times(-3^3-3^3+4^4)-4^4.$$

$$553 := 1!-(1!-(2!+2!)\times 3!)\times 4! = -(1^1+(1^1-2^2)\times 2^2)\times 3^3+4^4.$$
$$554 := (1!-(1!-4!)\times 2!\times 3!)\times 2! = (1^1+1^1)\times(4^4-2^2+3^3)-2^2.$$
$$558 := -(1!\times 1!+2!)\times 3!+4!\times 4! = -(1^1+1^1)\times(2^2-3^3)+4^4+4^4.$$
$$562 := -2!-3!-3!+4!\times 4! = -2^2+3^3+3^3+4^4+4^4.$$

$$564 := (1!+1!)\times(-3!+3!\times(4!+4!)) = -1^1-1^1+3^3+3^3+4^4+4^4$$
$$:= (-1!+(1!+1!)\times 4!)\times 3!\times 2! = (1^1+1^1)\times(1^1+4^4+3^3)-2^2.$$

$$565 := 1!-3!-3!+4!\times 4! = -1^1+3^3+3^3+4^4+4^4.$$

$$566 := 1!+1!-3!-3!+4!\times 4! = (1^1\times 1^1)\times 3^3+3^3+4^4+4^4$$
$$:= (1!-(1!-2!\times 4!)\times 3!)\times 2! = (1^1+1^1)\times(2^2+4^4+3^3-2^2).$$

$$567 := -1!-1!-1!-3!+4!\times 4! = 1^1+(1^1+1^1)\times 3^3+4^4+4^4.$$
$$568 := -(1!+1!)\times 1!-3!+4!\times 4! = (1^1+1^1)\times(1^1+3^3)+4^4+4^4.$$
$$570 := -2!\times 3!+3!+4!\times 4! = 2^2+3^3+3^3+4^4+4^4.$$
$$571 := 1!-(1!-(2!+2!)\times 4!)\times 3! = (1^1+1^1)\times(2^2\times 2^2+4^4)+3^3.$$

$$572 := (1!+1!+2!)\times(3!\times 4!-1!) = (1^1+1^1)\times(2^2+3^3+4^4-1^1).$$
$$574 := 1!+1!+2!-3!+4!\times 4! = (1^1+1^1)\times(2^2+3^3)+4^4+4^4.$$
$$575 := -1!+(1!+1!+2!)\times 3!\times 4! = 1^1+(1^1+1^1)\times(2^2+3^3+4^4).$$

$$576 := (2!+2!)\times 1!\times 3!\times 4! = 2^2\times(-2^2\times(1^1+3^3)+4^4).$$
$$577 := 1!\times 1!+3!\times 2!\times 4!\times 2! = 1^1-((1^1+3^3)\times 2^2-4^4)\times 2^2.$$
$$579 := -1!+(1!+4!\times 3!)\times(3!-2!) = -1^1-1^1-4^4+3^3\times(3^3+2^2).$$

$$580 := 2!\times(2!+(3!+3!)\times 4!) = 2^2\times(2^2\times 3^3-3^3)+4^4$$
$$:= (2!+2!)\times(1!+3!\times 4!) = 2^2\times(2^2-1^1)\times 3^3+4^4.$$

$$581 := 1! - ((1! + (4! \times 3!)) \times (2! - 3!)) \quad = -1^1 \times 1^1 \times 4^4 + (3^3 + 2^2) \times 3^3.$$
$$582 := (1! - 4! \times (2! - 3!)) \times 3! \quad = 1^1 - 4^4 + (2^2 + 3^3) \times 3^3.$$
$$583 := 1! + ((1! + (4! \times (3! - 2!))) \times 3!) \quad = 1^1 + 1^1 - 4^4 + (3^3 + 2^2) \times 3^3.$$
$$584 := ((1! + 1!) + 2!) \times ((3! \times 4!) + 2!) \quad = (-1^1 - 1^1 - 2^2 \times 3^3 + 4^4) \times 2^2.$$
$$587 := -1! + (((1! + (4! \times 2!)) \times 3!) \times 2!) = -1^1 + (-1^1 + 4^4 - 2^2 \times 3^3) \times 2^2.$$

$$588 := ((2! + 2!) \times 4! + 2!) \times 3! = -2^2 + 2^2 \times (4^4 - 2^2 \times 3^3)$$
$$:= (1! + 4! \times 2!) \times 3! \times 2! \quad = (-1^1 + 4^4 - 2^2 \times 3^3) \times 2^2.$$

$$589 := 1! + (((1! + (4! \times 2!)) \times 3!) \times 2!) \quad = 1^1 - (1^1 - 4^4 + 2^2 \times 3^3) \times 2^2.$$
$$590 := (1! + ((1! + (2! \times 4!)) \times 3!)) \times 2! \quad = -1^1 - 1^1 + 2^2 \times (4^4 - 3^3 \times 2^2).$$
$$592 := ((1! + 1!) \times (2! + 3!)) + (4! \times 4!) \quad = -1^1 - (1^1 - 2^2) \times 3^3 + 4^4 + 4^4.$$
$$593 := -(1! - ((1! + 2!) \times 3!)) + (4! \times 4!) = -(1^1 \times 1^1 - 2^2) \times 3^3 + 4^4 + 4^4.$$

$$594 := (((1! \times 1!) + 2!) \times 3!) + (4! \times 4!) \quad = 1^1 - (1^1 - 2^2) \times 3^3 + 4^4 + 4^4.$$
$$595 := (1! + ((1! - 3!) \times 4!)) \times (1! - 3!) \quad = (1^1 + 1^1) \times (3^3 + 4^4 + 1^1) + 3^3.$$
$$596 := ((-1! + ((1! + 4!) \times 3!)) \times 2!) \times 2! = (1^1 \times 1^1 + 4^4 - 3^3 \times 2^2) \times 2^2.$$
$$598 := (-1! + (((1! + 4!) \times 3!) \times 2!)) \times 2! = (1^1 + 1^1) \times (4^4 + 3^3 + 2^2 \times 2^2).$$

$$600 := ((((1! \times 1!) + 4!) \times 3!) \times 2!) \times 2! = (1^1 + 1^1 + 4^4 - 3^3 \times 2^2) \times 2^2.$$
$$604 := (1! + (1! + 4!) \times 3!) \times 2! \times 2! \quad = (1^1 + 1^1) \times 4^4 + (3^3 - 2^2) \times 2^2.$$
$$612 := ((1! + 1! + 2!) \times 4! + 3!) \times 3! \quad = (1^1 + 1^1) \times (-2^2 + 4^4 + 3^3 + 3^3).$$
$$616 := -2! - 3! + (2! + 4!) \times 4! \quad = 2^2 \times 3^3 - 2^2 + 4^4 + 4^4.$$

$$617 := -1! \times 1! - 3! + (2! + 4!) \times 4! = 1^1 - (1^1 - 3^3) \times 2^2 + 4^4 + 4^4.$$
$$618 := -1! \times 1! \times 3! + (2! + 4!) \times 4! = -1^1 - 1^1 + 3^3 \times 2^2 + 4^4 + 4^4.$$
$$619 := 1! - 3! + (2! + 4!) \times 4! \quad = -1^1 + 3^3 \times 2^2 + 4^4 + 4^4.$$
$$620 := (1! + 1! + 4!) \times 4! + 2! - 3! \quad = 1^1 \times 1^1 \times 4^4 + 4^4 + 2^2 \times 3^3.$$

$$623 := -1! + (1! + 3! \times 2!) \times (4! + 4!) = -1^1 + (1^1 + 3^3) \times 2^2 + 4^4 + 4^4.$$
$$624 := (2! + (2! + 2!) \times 3!) \times 4! \quad = 2^2 \times 2^2 \times (-2^2 + 3^3) + 4^4.$$
$$628 := -1! - 1! + 3! + (2! + 4!) \times 4! \quad = (1^1 + 1^1 + 3^3) \times 2^2 + 4^4 + 4^4.$$
$$647 := -1! + (-1! - 2! + 3! + 4!) \times 4! = (1^1 \times 1^1 + 2^2) \times 3^3 + 4^4 + 4^4.$$

$$648 := (3! + 3! + 3!) \times 3! \times 3! = -3^3 - 3^3 - 3^3 + 3^3 \times 3^3$$
$$:= (2! \times 3! + 3!) \times 3! \times 3! = -2^2 \times 3^3 + 3^3 + 3^3 \times 3^3$$
$$:= (1! + 2!) \times 3! \times 3! \times 3! = -(1^1 \times 2^2 - 3^3) \times 3^3 + 3^3.$$

$$649 := 1! + (1! + 2!) \times 3! \times 3! \times 3! \quad = 1^1 \times 1^1 - (2^2 - 3^3) \times 3^3 + 3^3.$$
$$656 = (3! + ((1! + 4!) \times (2! + 4!))) \quad = (((-(3^3 + 1^1) + 4^4) \times 2^2) - 4^4).$$
$$658 := -1! - 1! + (4! - 2!) \times (3! + 4!) \quad = -1^1 - 1^1 - 4^4 + 2^2 \times (-3^3 + 4^4).$$
$$659 = (-1! + ((-2! + 4!) \times (3! + 4!))) = ((-1^1 + (2^2 \times (4^4 - 3^3))) - 4^4).$$

$$660 := (-2! + 4!) \times (3! + 4!) = 2^2 \times (4^4 - 3^3) - 4^4.$$
$$661 := 1! + (-2! + 4!) \times (3! + 4!) = 1^1 + 2^2 \times (4^4 - 3^3) - 4^4.$$
$$662 := 1! + 1! + (4! - 2!) \times (4! + 3!) = 1^1 + 1^1 - 4^4 + 2^2 \times (4^4 - 3^3).$$
$$666 := (-1! \times 1! + 5!) \times 3! - 4! \times 2! = -(1^1 + 1^1) \times 5^5 + 3^3 \times 4^4 + 2^2.$$
$$671 := -1! + (1! + 3!) \times 2! \times 2! \times 4! = -1^1 - (1^1 - 3^3) \times 2^2 \times 2^2 + 4^4.$$

$$672 := 2! \times (2! + 2! \times 3!) \times 4! = 2^2 \times (-2^2 + 2^2 \times 3^3) + 4^4$$
$$:= (1! + 3!) \times 2! \times 2! \times 4! = (-1^1 + 3^3) \times 2^2 \times 2^2 + 4^4.$$

$$673 := 1! + (1! + 3!) \times 2! \times 2! \times 4! = 1^1 - (1^1 - 3^3) \times 2^2 \times 2^2 + 4^4.$$
$$674 := 1! + 1! - (2! - 3! - 4!) \times 4! = (1^1 + 1^1 + 2^2) \times 3^3 + 4^4 + 4^4.$$
$$689 := (-1! \times 1! + 5!) \times 3! - 1! - 4! = -(1^1 + 1^1) \times 5^5 + 3^3 \times (1^1 + 4^4).$$
$$696 := (-1! + (1! + 2! + 2!) \times 3!) \times 4! = (1^1 + 1^1) \times (-2^2 \times (2^2 - 3^3) + 4^4).$$

$$701 := -1! - (1! - 3! - 4!) \times 4! + 3! = -1^1 + (-1^1 + 3^3 - 4^4 + 4^4) \times 3^3.$$
$$702 := 3! + (3! - 1! + 4!) \times 4! = 3^3 \times (3^3 - 1^1) + 4^4 - 4^4.$$
$$703 := 1! - (1! - 3! - 4!) \times 4! + 3! = 1^1 - (1^1 - 3^3 + 4^4 - 4^4) \times 3^3.$$
$$712 := -1! + (1! + 3! + 4!) \times (-1! + 4!) = -(1^1 + 1^1) \times (3^3 - 4^4 + 1^1) + 4^4.$$

$$713 := (1! \times 1! + 3! + 4!) \times (-1! + 4!) = -(1^1 + 1^1) \times (3^3 - 4^4) - 1^1 + 4^4.$$
$$714 := -3! + 3! \times 4! + 4! \times 4! = -3^3 - 3^3 + 4^4 + 4^4 + 4^4.$$
$$718 := (1! \times 1! \times 3! + 4!) \times 4! - 2! = -(1^1 + 1^1) \times (3^3 - 4^4) + 4^4 + 2^2.$$
$$720 := (1! \times 1! + 2! + 2!) \times 3! \times 4! = (1^1 + 1^1) \times (-2^2 + 2^2 \times 3^3 + 4^4).$$

$$722 := 1! \times 1! \times 2! + (3! + 4!) \times 4! = (1^1 + 1^1) \times (2^2 - 3^3 + 4^4) + 4^4.$$
$$728 := (4! + 2!) \times (-2! + 3! + 4!) = 4^4 + (2^2 + 2^2) \times 3^3 + 4^4.$$
$$730 := (-1! \times 1! + 3!) \times (2! + 3! \times 4!) = (1^1 + 1^1) \times ((3^3 - 2^2) \times 3^3 - 4^4).$$
$$736 := (-1! \times 1! + 4!) \times (2! + 3! + 4!) = -1^1 + (-1^1 + 4^4) \times 2^2 - 3^3 - 4^4.$$

$$737 := 1! - (1! - 4!) \times (2! + 3! + 4!) = (1^1 + 1^1) \times 4^4 - 2^2 - 3^3 + 4^4.$$
$$741 := -1! + (1! + 3! + 4!) \times 4! - 2! = -(1^1 \times 1^1) \times 3^3 - 4^4 + 4^4 \times 2^2.$$
$$742 := (1! + 3! + 4!) \times 4! - 2! = 1^1 - 3^3 - 4^4 + 4^4 \times 2^2.$$

$$743 := -1! \times 1! + (3! + 4!) \times 4! + 4! = 1^1 + 1^1 - 3^3 + 4^4 + 4^4 + 4^4$$
$$:= 1! + (1! + 3! + 4!) \times 4! - 2! = 1^1 + 1^1 - 3^3 - 4^4 + 4^4 \times 2^2.$$

$$744 := (-1! \times 1! + 4! + 2! + 3!) \times 4! = -1^1 + (1^1 + 4^4) \times 2^2 - 3^3 - 4^4.$$
$$745 := 1! - (1! - 4! - 2! - 3!) \times 4! = (1^1 + 1^1) \times 4^4 + 2^2 - 3^3 + 4^4.$$
$$749 := -1! + (-1! + 2! + 4!) \times (3! + 4!) = (1^1 + 1^1) \times (2^2 + 4^4) - 3^3 + 4^4.$$

$$756 := 3! \times 3! + (3! + 4!) \times 4! = 3^3 \times 3^3 + 3^3 + 4^4 - 4^4$$
$$:= (1! + 4!) \times (4! + 3!) + 3! = (1^1 + 4^4 - 4^4 + 3^3) \times 3^3.$$

$$757 := 1! + (1! + 4!) \times (4! + 3!) + 3! = 1^1 + (1^1 + 4^4 - 4^4 + 3^3) \times 3^3.$$

$$\begin{aligned} 767 &:= -1! + (-(1! - 3!) \times 3! + 2!) \times 4! = -1^1 + (-1^1 - 3^3 + 3^3 + 2^2) \times 4^4 \\ &:= -1! \times 1! + 2! \times (4! + 6!) - 6! \quad = -1^1 - (1^1 - 2^2) \times 4^4 - 6^6 + 6^6. \end{aligned}$$

$$\begin{aligned} 768 &:= ((2! + 2!) \times 2! + 4!) \times 4! = (2^2 + 2^2 - 2^2) \times 4^4 - 4^4 \\ &:= (-2! + 4!) \times 3! \times 3! - 4! = 2^2 \times 4^4 + 3^3 - 3^3 - 4^4 \\ &:= 2! \times 6! - 6! + 4! + 4! \quad = (2^2 + 6^6 - 6^6) \times 4^4 - 4^4 \\ &:= (-2! + 4!) \times 4! + 5! + 5! = 2^2 \times 4^4 - 4^4 + 5^5 - 5^5. \end{aligned}$$

$$\begin{aligned} 769 &:= 1! - ((1! - 3!) \times 3! - 2!) \times 4! = 1^1 - (1^1 + 3^3 - 3^3 - 2^2) \times 4^4 \\ &:= 1! \times 1! + 2! \times (4! + 6!) - 6! \quad = 1^1 - (1^1 - 2^2) \times 4^4 + 6^6 - 6^6. \end{aligned}$$

$$770 := 1! + 1! + 5! \times 3! + 2! \times 4! \quad = -(1^1 + 1^1) \times 5^5 + 3^3 \times (2^2 + 4^4).$$
$$781 := 1! - (1! - 3!) \times (4! + 2!) \times 3! \quad = (-(1^1 + 1^1) \times 3^3 + 4^4) \times 2^2 - 3^3.$$
$$782 := (1! \times 1! - 4!) \times (2! - 3! \times 3!) \quad = (1^1 + 1^1) \times (4^4 + 2^2 \times 3^3 + 3^3).$$
$$791 := -1! + ((1! + 4!) + 2! + 3!) \times 4! = (1^1 + 1^1) \times 4^4 - 2^2 + 3^3 + 4^4.$$
$$792 := (1! + 1! - 4!) \times 2! \times (3! - 4!) \quad = 1^1 - (1^1 - 4^4) \times 2^2 + 3^3 - 4^4.$$

$$793 := 1! + (1! + 4! + 2! + 3!) \times 4! \quad = -1^1 - 1^1 + 4^4 \times 2^2 + 3^3 - 4^4.$$
$$799 := -1! + (1! + 4!) \times (2! + 3! + 4!) = (1^1 + 1^1) \times 4^4 + 2^2 + 3^3 + 4^4.$$
$$800 := (1! \times 1! + 4!) \times (2! + 3! + 4!) \quad = 1^1 + (1^1 + 4^4) \times 2^2 + 3^3 - 4^4.$$
$$804 := (2! - (2! - 4!) \times 3!) \times 3! \quad = -2^2 + 2^2 \times (4^4 - 3^3 - 3^3).$$
$$806 := (1! - (1! - 3!) \times 3!) \times (4! + 2!) = -1^1 - 1^1 + (-3^3 - 3^3 + 4^4) \times 2^2.$$

$$813 := -1! + (1! + 3! \times 3!) \times (4! - 2!) \quad = 1^1 + (1^1 - 3^3 - 3^3 + 4^4) \times 2^2.$$
$$816 := 1! \times 1! \times 4! \times (3! \times 3! - 2!) \quad = (1^1 + 1^1 + 4^4 - 3^3 - 3^3) \times 2^2.$$
$$818 := (1! - (1! + 3! - 4!) \times 4!) \times 2! \quad = (1^1 + 1^1) \times (3^3 + 4^4) + 4^4 - 2^2.$$
$$822 := (-1! + (1! - 2! + 4!) \times 3!) \times 3! \quad = (-1^1 \times 1^1 + 2^2) \times 4^4 + 3^3 + 3^3.$$
$$826 := (-1! + (1! - 4!) \times (3! - 4!)) \times 2! = (1^1 + 1^1) \times (4^4 + 3^3) + 4^4 + 2^2.$$

$$850 := (4! + 1!) \times (-2! + 3! \times 3!) \quad = 4^4 + (-1^1 - 2^2 + 3^3) \times 3^3.$$
$$851 := -1! \times 1! + 3! \times (-2! + 3! \times 4!) = 1^1 - (1^1 - 3^3 + 2^2) \times 3^3 + 4^4.$$
$$852 := (-1! + (1! + 2!) \times 4!) \times 3! \times 2! = -1^1 - (1^1 - 2^2) \times (4^4 + 3^3) + 2^2.$$
$$853 := 1! \times 1! - 3! \times (2! - 3! \times 4!) \quad = -1^1 + (1^1 - 3^3) \times (2^2 - 3^3) + 4^4.$$
$$854 := 1! + 1! - 3! \times (2! - 3! \times 4!) \quad = (1^1 \times 1^1 - 3^3) \times (2^2 - 3^3) + 4^4.$$

$$860 := 2! \times (-2! + (-3! + 4!) \times 4!) \quad = 2^2 \times (-2^2 + 3^3 + 4^4) - 4^4.$$
$$861 := -1! \times 1! - 2! + 3! \times (4! + 5!) = -(1^1 + 1^1) \times 2^2 \times (3^3 + 4^4) + 5^5.$$
$$862 := 1! \times 1! \times 3! \times 3! \times 4! - 2! \quad = -(1^1 + 1^1) \times 3^3 + (-3^3 + 4^4) \times 2^2.$$
$$868 := 1! + 1! + 4! \times 3! \times 3! + 2! \quad = (-(1^1 + 1^1) \times 4^4 + 3^3 \times 3^3) \times 2^2.$$
$$875 := -1! \times 1! + (2! + 4! \times 3!) \times 3! = -1^1 - (1^1 - 2^2) \times (4^4 + 3^3) + 3^3.$$

$876 := (1! \times 2! + 3! \times 4!) \times 3! = (-1^1 + 2^2) \times (3^3 + 4^4) + 3^3.$
$877 := 1! + 3! \times (2! + 3! \times 4!) = (1^1 \times 3^3 - 2^2) \times 3^3 + 4^4.$
$878 := 1! + 1! + 3! \times (2! + 3! \times 4!) = 1^1 \times 1^1 + (3^3 - 2^2) \times 3^3 + 4^4.$
$881 := -1! + (1! + 3! \times 4! + 2!) \times 3! = (-1^1 - 1^1 - 3^3 + 4^4) \times 2^2 - 3^3.$
$887 := 1! + (1! + 3! \times 3!) \times 4! - 2! = -1^1 - 1^1 - 3^3 + (-3^3 + 4^4) \times 2^2.$

$888 := ((1! + 4!) \times 3! - 2!) \times 3! = -1^1 + (4^4 - 3^3) \times 2^2 - 3^3.$
$889 := 1! + (1! + 2! \times 3! + 4!) \times 4! = (1^1 \times 1^1 + 2^2) \times (-3^3 + 4^4) - 4^4.$
$890 := (1! + 3! \times 3!) \times 4! + 2! = 1^1 - 3^3 + (-3^3 + 4^4) \times 2^2.$
$891 := 1! + (1! + 3! \times 3!) \times 4! + 2! = 1^1 + 1^1 - 3^3 - (3^3 - 4^4) \times 2^2.$
$894 := (1! + (1! + 4!) \times 3! - 2!) \times 3! = 1^1 + (1^1 + 4^4 - 3^3) \times 2^2 - 3^3.$

$911 := -1! \times 1! + (2! + 3!) \times (-3! + 5!) = (-1^1 + (1^1 - 2^2) \times 3^3) \times 3^3 + 5^5.$
$912 := (1! + (1! + 2!) \times 3!) \times 4! \times 2! = 1^1 \times 1^1 \times 2^2 \times (-3^3 + 4^4) - 2^2.$
$918 := -(1! + 1!) \times (5! - 4! \times 4!) + 3! = -(1^1 + 1^1) \times 5^5 + 4^4 + 4^4 \times 3^3.$
$923 := -1! + (1! + 3!) \times 3! \times (-2! + 4!) = (1^1 + 1^1 + 3^3) \times (3^3 - 2^2) + 4^4.$
$929 := -1! + (-1! + (2! + 4!) \times 3!) \times 3! = -1^1 + (-1^1 + 2^2) \times (4^4 + 3^3 + 3^3).$

$930 := (-1! + (2! + 4!) \times 3!) \times 3! = (-1^1 + 2^2) \times (4^4 + 3^3 + 3^3).$
$931 := 1! - (1! - (2! + 4!) \times 3!) \times 3! = 1^1 - (1^1 - 2^2) \times (4^4 + 3^3 + 3^3).$
$935 := -1! \times 1! + 3! \times 3! \times (2! + 4!) = -(1^1 + 1^1 - 3^3) \times 3^3 + 2^2 + 4^4.$
$938 := 2! + 3! \times (3! \times 3! + 5!) = (-2^2 \times 3^3 + 3^3) \times 3^3 + 5^5.$
$941 := -1! + (1! + (2! + 4!) \times 3!) \times 3! = -1^1 - 1^1 + 2^2 \times (4^4 - 3^3) + 3^3.$

$942 := (1! + (2! + 4!) \times 3!) \times 3! = -1^1 + 2^2 \times (4^4 - 3^3) + 3^3.$
$943 := 1! + (1! + (2! + 4!) \times 3!) \times 3! = 1^1 \times 1^1 \times 2^2 \times (4^4 - 3^3) + 3^3.$
$948 := (1! + 1! + 3! \times (4! + 2!)) \times 3! = 1^1 + (1^1 - 3^3 + 4^4) \times 2^2 + 3^3.$
$950 := (1! \times 1! + 4!) \times (3! \times 3! + 2!) = -(1^1 + 1^1) \times (4^4 - 3^3 \times 3^3) + 2^2.$
$959 := (-1! + (-1! + 4!) \times 3!) \times (1! + 3!) = 1^1 \times 1^1 + 4^4 + (3^3 - 1^1) \times 3^3.$

$960 := (1! + 1! + 3!) \times (3! - 1!) \times 4! = 1^1 + 1^1 + 3^3 \times (3^3 - 1^1) + 4^4.$
$961 := 1! + ((1! + 3!) \times 3! - 2!) \times 4! = -1^1 - (1^1 - 3^3) \times 3^3 + 2^2 + 4^4.$
$962 := (1! + 3! \times 3!) \times (2! + 4!) = (-1^1 + 3^3) \times 3^3 + 2^2 + 4^4.$
$963 := 1! + (1! + 3! \times 3!) \times (2! + 4!) = 1^1 - (1^1 - 3^3) \times 3^3 + 2^2 + 4^4.$
$966 := (1! \times 1! - 4!) \times (3! - 4! \times 2!) = (1^1 + 1^1) \times (4^4 - 3^3 + 4^4) - 2^2.$

$966 := (-1! + (1! + 4! + 2!) \times 3!) \times 3! = (-1^1 \times 1^1 + 4^4) \times 2^2 - 3^3 - 3^3.$
$968 := (1! - (1! - 3!) \times 4!) \times (2! + 3!) = -1^1 - 1^1 - 3^3 + 4^4 \times 2^2 - 3^3.$
$971 := -1! + (1! + 2! + 4!) \times 3! \times 3! = 1^1 \times 1^1 + 2^2 \times 4^4 - 3^3 - 3^3.$
$972 := (1! \times 1! + 2! + 4!) \times 3! \times 3! = 1^1 + 1^1 + 2^2 \times 4^4 - 3^3 - 3^3.$

$973 := 1! + (1! + 4! + 2!) \times 3! \times 3! = -1^1 + (1^1 + 4^4) \times 2^2 - 3^3 - 3^3.$
$978 := (1! + (1! + 4! + 2!) \times 3!) \times 3! = (1^1 + 1^1 + 4^4) \times 2^2 - 3^3 - 3^3.$
$982 := (-1! + (1! + 3!) \times 3!) \times 4! - 2! = 1^1 \times 1^1 + 3^3 \times 3^3 + 4^4 - 2^2.$
$984 := ((1! + 3!) \times 3! - 1!) \times 4! = (1^1 + 3^3) \times (3^3 - 1^1) + 4^4.$

$985 := 1! - (1! - (1! + 3!) \times 3!) \times 4! = (1^1 + 1^1 - 1^1) \times 3^3 \times 3^3 + 4^4.$
$988 := (1! + 1! + 3! \times 3!) \times (2! + 4!) = -1^1 \times 1^1 + 3^3 \times 3^3 + 2^2 + 4^4.$
$997 := 1! + ((1! + 3!) \times 4! - 2!) \times 3! = -(1^1 + 1^1) \times 3^3 + 4^4 \times 2^2 + 3^3.$

$1000 := -1! + (-1! + 4! \times 3!) \times (1! + 3!) = (1^1 + 1^1) \times (-4^4 + (3^3 + 1^1) \times 3^3).$
$1007 := 1! + (1! + 3!) \times 3! \times 4! - 2! = -1^1 + (1^1 + 3^3) \times 3^3 + 4^4 - 2^2.$

$1008 := ((4! - 2!) \times 4! - 4!) \times 2! = (4^4 - 2^2 - 4^4 + 4^4) \times 2^2$
$:= (2! + 2! + 4!) \times 3! \times 3! = 2^2 \times (-2^2 + 4^4) - 3^3 + 3^3$
$:= 2! \times (2! \times (5! + 5!) + 4!) = 2^2 \times (-2^2 - 5^5 + 5^5 + 4^4).$

$1009 := 1! - (1! - 2! - 3!) \times 3! \times 4! = -1^1 + (1^1 + 2^2) \times (-3^3 - 3^3 + 4^4).$
$1010 := 3! \times 4! \times (3! + 1!) + 2! = (-3^3 + 4^4 - 3^3) \times (1^1 + 2^2).$
$1012 := (4! - 1!) \times 2! \times (4! - 2!) = 4^4 - (1^1 - 2^2) \times (4^4 - 2^2).$
$1013 := -1! + (1! + 3!) \times 3! \times 4! + 3! = 1^1 \times 1^1 + 3^3 \times 3^3 + 4^4 + 3^3.$

$1014 := -1! + (1! + 3!) \times (1! + 3! \times 4!) = 1^1 + 1^1 + (3^3 + 1^1) \times 3^3 + 4^4.$
$1016 := (1! + (1! + 3!) \times 4!) \times 3! + 2! = (-1^1 - 1^1 - 3^3 + 4^4 + 3^3) \times 2^2.$
$1020 := 3! \times (4! \times (3! + 1!) + 2!) = (3^3 + 4^4 - 3^3 - 1^1) \times 2^2.$
$1021 := -1! + (1! + 3!) \times (3! \times 4! + 2!) = 1^1 - (1^1 + 3^3 - 3^3 - 4^4) \times 2^2.$
$1022 := (1! \times 1! + 3!) \times (2! + 3! \times 4!) = -1^1 - 1^1 + (3^3 + 2^2 - 3^3) \times 4^4.$

$1023 := 1! + (1! + 3!) \times (2! + 3! \times 4!) = -1^1 \times 1^1 + (3^3 + 2^2 - 3^3) \times 4^4$
$:= 1! + (1! + 3!) \times (2! + 4! + 5!) = -(1^1 + 1^1) \times (3^3 + 2^2 \times 4^4) + 5^5.$

$1026 := (1! + (1! + 3!) \times 4! + 2!) \times 3! = 1^1 + 1^1 + 3^3 + 4^4 \times 2^2 - 3^3.$
$1032 := (-1! \times 1! + 2! \times (-2! + 4!)) \times 4! = (-1^1 - 1^1 + 2^2) \times (2^2 + 4^4 + 4^4).$
$1034 := (1! - (1! + 1!) \times 4!) \times (2! - 4!) = (1^1 + 1^1) \times (1^1 + 4^4 + 2^2 + 4^4).$

$1035 := 1! + (1! - 2! \times 4!) \times (2! - 4!) = -1^1 - (1^1 - 2^2) \times (4^4 + 2^2) + 4^4.$
$1038 := (1! + (1! + 3!) \times 3!) \times 4! + 3! = -1^1 + (1^1 + 3^3) \times 3^3 + 4^4 + 3^3.$
$1050 := (1! + 1!) \times (-2! + 4!) \times 4! - 3! = -1^1 + (1^1 + 2^2) \times 4^4 - 4^4 + 3^3.$

$1051 := 1! - (1! + 4!) \times (3! - 4! - 4!) = (1^1 + 1^1) \times 4^4 + 3^3 + 4^4 + 4^4$
$:= 1! + (1! + 4!) \times (4! \times 2! - 3!) = ((1^1 + 1^1) \times 4^4 - 4^4) \times 2^2 + 3^3.$

$1056 := (-(1! + 1! + 2!) + 2! \times 4!) \times 4! = (1^1 + 1^1) \times (2^2 \times 2^2 + 4^4 + 4^4).$
$1078 := 3! \times 3! \times (3! + 4!) - 2! = -3^3 - 3^3 + (3^3 + 4^4) \times 2^2.$
$1079 := -1! + ((1! + 4!) \times 4!) \times 2! - 5! = 1^1 + 1^1 - (4^4 + 4^4) \times 2^2 + 5^5.$

$$1080 := (1! \times 1! + 4!) \times 4! \times 2! - 5! \quad = -1^1 + (1^1 - 4^4 - 4^4) \times 2^2 + 5^5.$$
$$1081 := 1! + (1! + 4!) \times 4! \times 2! - 5! \quad = (1^1 \times 1^1 - 4^4 - 4^4) \times 2^2 + 5^5.$$
$$1082 := (1! + (1! + 4!) \times 4!) \times 2! - 5! = 1^1 + (1^1 - 4^4 - 4^4) \times 2^2 + 5^5.$$

$$1086 := -(1! + (1! - 4!) \times 2!) \times 4! + 3! \quad = (1^1 + 1^1) \times (4^4 + 2^2 + 4^4 + 3^3).$$
$$1091 := -1! + (1! + 3!) \times 3! \times (2! + 4!) \quad = -1^1 - 1^1 + 3^3 \times (3^3 + 2^2) + 4^4.$$
$$1092 = (1! + 3!) \times 3! \times (2! + 4!) \quad = -1^1 + 3^3 \times (3^3 + 2^2) + 4^4.$$
$$1103 := -1! + (-1! + 4!) \times 3! \times (2! + 3!) = -1^1 - 1^1 + (4^4 + 3^3) \times 2^2 - 3^3.$$

$$1104 := (3! + 2!) \times 3! \times (4! - 1!) = -3^3 + 2^2 \times (3^3 + 4^4) - 1^1$$
$$:= 2! \times (4! \times (4! - 3!) + 5!) = -2^2 \times (4^4 + 4^4) + 3^3 + 5^5.$$

$$1105 := 1! + (-1! + 4!) \times 3! \times (2! + 3!) = (1^1 \times 1^1 \times 4^4 + 3^3) \times 2^2 - 3^3.$$
$$1110 := 1! + (-1! + 4!) \times (3! + 2!) \times 3! = 1^1 + (1^1 + 4^4 + 3^3) \times 2^2 - 3^3.$$
$$1151 := -1! \times 1! + 3! \times 4! \times (2! + 3!) \quad = (-1^1 - 1^1 + 3^3 + 4^4) \times 2^2 + 3^3.$$
$$1154 := 1! + 1! + 3! \times 4! \times (2! + 3!) \quad = -1^1 + (-1^1 + 3^3 + 4^4) \times 2^2 + 3^3.$$

$$1156 := 4! \times 2! \times 4! + 3! - 2! \quad = 4^4 - (2^2 - 4^4 + 3^3) \times 2^2.$$
$$1157 := -1! + (1! + (2! + 3!) \times 4!) \times 3! = -1^1 - 1^1 + 2^2 \times (3^3 + 4^4) + 3^3.$$
$$1158 := (1! + (2! + 3!) \times 4!) \times 3! \quad = -1^1 + 2^2 \times (3^3 + 4^4) + 3^3.$$
$$1168 := 2! \times (2! + 3! + 4! \times 4!) \quad = -2^2 - 2^2 \times (3^3 - 4^4) + 4^4.$$

$$1170 := (1! \times 1! + 4! \times 2!) \times 4! - 3! \quad = -1^1 - 1^1 + 4^4 + 2^2 \times (4^4 - 3^3).$$
$$1171 := 1! + (1! + 4! \times 2!) \times 4! - 3! \quad = -1^1 \times 1^1 + 4^4 + 2^2 \times (4^4 - 3^3).$$
$$1175 := -1! + (1! + 3!) \times (1! + 3!) \times 4! = ((1^1 + 1^1) \times 3^3 - 1^1) \times 3^3 - 4^4.$$
$$1176 := 2! \times (2! \times 3! + 4! \times 4!) \quad = 2^2 - 2^2 \times (3^3 - 4^4) + 4^4.$$

$$1188 := (4! - 2!) \times (4! \times 2! + 3!) \quad = 4^4 + 2^2 \times (4^4 + 2^2 - 3^3).$$
$$1200 := (3! - (2! - 4!) \times 2!) \times 4! \quad = (3^3 \times 2^2 + 4^4) \times 2^2 - 4^4.$$
$$1230 := (-1! + (1! + 3!) \times 3!) \times (3! + 4!) = 1^1 + (1^1 + 3^3 + 3^3) \times 3^3 - 4^4.$$
$$1248 := (2! + 2! + 2! \times 4!) \times 4! \quad = -2^2 \times (2^2 + 2^2 - 4^4) + 4^4.$$

$$1249 := 1! - ((1! - 4!) \times 2! - 3!) \times 4! \quad = (-1^1 \times 1^1 + 4^4) \times 2^2 - 3^3 + 4^4.$$
$$1254 := (1! + 1!) \times (2! + 4!) \times 4! + 3! \quad = 1^1 \times 1^1 + 2^2 \times 4^4 + 4^4 - 3^3.$$
$$1271 := -1! + (1! + (4! + 2!) \times 2!) \times 4! = -1^1 - (1^1 - 4^4) \times 2^2 - 2^2 + 4^4.$$
$$1272 := (1! + (4! + 2!) \times 2!) \times 4! \quad = -(1^1 - 4^4) \times 2^2 - 2^2 + 4^4.$$

$$1273 := 1! + (1! + (4! + 2!) \times 2!) \times 4! \quad = 1^1 - (1^1 - 4^4) \times 2^2 - 2^2 + 4^4.$$
$$1274 := (1! \times 1! + 2! \times 4!) \times (2! + 4!) \quad = -1^1 - 1^1 - 2^2 + 4^4 + (2^2 \times 4^4).$$
$$1275 := 1! + (1! + 2! \times 4!) \times (2! + 4!) \quad = -1^1 \times 1^1 - 2^2 + 4^4 + 2^2 \times 4^4.$$
$$1294 := (-1! + (1! + 4!) + 2!) \times 4! \times 2! = (-((1^1 + 1^1) - 4^4) + ((2^2 + 4^4) \times 2^2)).$$

$$1295 := -1! + (1! + 2! + 4!) \times 2! \times 4! \quad = (-((1^1 \times 1^1) - ((2^2 + 4^4) \times 2^2)) + 4^4)$$
$$:= -1! + ((-1! + 3!) \times 3! + 4!) \times 4! = (((((1^1 + 1^1) + 3^3) \times 3^3) + 4^4) + 4^4).$$

$$1299 := (-1! + (((1! + 4!) \times 2!) \times (2! + 4!))) = -1^1 + (1^1 + 4^4 + 2^2) \times 2^2 + 4^4.$$
$$1320 := (-1! - 1! + 4!) \times (3! + 4!) \times 2! \quad = (1^1 + 1^1) \times (-4^4 + (-3^3 + 4^4) \times 2^2).$$
$$1390 := (-1! + (-1! + 4! + 3!) \times 4!) \times 2! \quad = 1^1 + 1^1 + 4^4 + (3^3 + 4^4) \times 2^2.$$
$$1391 := -1! + (-1! + 3! + 4!) \times 2! \times 4! \quad = -1^1 + (1^1 + 3^3 + 4^4) \times 2^2 + 4^4.$$

$$1392 := (4! - 1! + 3!) \times 2! \times 4! \quad = (4^4 + 1^1 + 3^3) \times 2^2 + 4^4.$$
$$1393 := 1! + (-1! + 3! + 4!) \times 2! \times 4! = 1^1 + (1^1 + 3^3 + 4^4) \times 2^2 + 4^4.$$
$$1442 := 1! + 1! + 2! \times (3! + 4!) \times 4! \quad = (1^1 + 1^1 + 2^2) \times (3^3 + 4^4) - 4^4.$$

$$1451 := -1! \times 1! + 2! \times (3! + 3! \times 5!) = -(1^1 + 1^1) \times (2^2 + 3^3) \times 3^3 + 5^5.$$
$$1458 := 3! + 3! + 3! + 6! + 6! \quad = (3^3 + 3^3) \times 3^3 + 6^6 - 6^6.$$
$$1511 := -1! + (1! + 3!) \times 3! \times 3! \times 3! = -1^1 + (1^1 + 3^3 + 3^3) \times 3^3 + 3^3.$$

$$1536 := (1! + 1! + 2!) \times 4! + 6! + 6! \quad = (1^1 + 1^1 + 2^2) \times 4^4 + 6^6 - 6^6$$
$$:= (1! + 1! + 3!) \times (2! + 3!) \times 4! = (1^1 + 1^1 + 3^3 + 2^2 - 3^3) \times 4^4.$$

$$1559 := -1! + (-1! + 3! + 2! + 3!) \times 5! \quad = (-(1^1 + 1^1) \times 3^3 - 2^2) \times 3^3 + 5^5.$$
$$1639 := 1! + (1! + 3! + 3!) \times (3! + 5!) \quad = -1^1 - (1^1 + 3^3 + 3^3) \times 3^3 + 5^5.$$
$$1666 := (1! + 1! + 3! + 3!) \times (-1! + 5!) \quad = -(1^1 + 1^1) \times 3^3 \times 3^3 - 1^1 + 5^5.$$
$$1668 := (1! + 1!) \times (-3! + (3! + 1!) \times 5!) = -(1^1 + 1^1) \times 3^3 \times 3^3 + 1^1 + 5^5.$$

$$1715 := -1! + (-1! + 4! \times 3!) \times (3! + 3!) = 1^1 \times 1^1 + 4^4 + (3^3 + 3^3) \times 3^3.$$
$$1716 := (1! + 1!) \times (-3! + 3! \times 3! \times 4!) \quad = 1^1 + 1^1 + (3^3 + 3^3) \times 3^3 + 4^4.$$
$$1724 := (-1! - 1! + 4! \times 3! \times 3!) \times 2! \quad = ((1^1 + 1^1) \times (4^4 - 3^3) - 3^3) \times 2^2.$$
$$1725 := -1! + (-1! + 3! \times 3! \times 4!) \times 2! \quad = -1^1 - (1^1 - 3^3) \times 3^3 + 4^4 \times 2^2.$$

$$1726 := (3! + 3!) \times 3! \times 4! - 2! \quad = 3^3 \times 3^3 - 3^3 + 4^4 \times 2^2$$
$$:= (-1! + (3! \times 3!) \times 4!) \times 2! = -(1^1 - 3^3) \times 3^3 + 4^4 \times 2^2.$$

$$1727 := -1! \times 1! + 3! \times 3! \times 2! \times 4! \quad = 1^1 - (1^1 - 3^3) \times 3^3 + 2^2 \times 4^4.$$
$$1740 := (1! + 1!) \times (3! + 3! \times 3! \times 4!) = -1^1 + (1^1 + 3^3 + 3^3) \times 3^3 + 4^4.$$
$$1751 := -1! + (1! + 3! \times 3! \times 2!) \times 4! = -1^1 - 1^1 + 3^3 \times 3^3 + 2^2 \times 4^4.$$
$$1752 := (1! + 3! \times 3! \times 2!) \times 4! \quad = -1^1 + 3^3 \times 3^3 + 2^2 \times 4^4.$$

$$1776 := (2! + 4! + 2! \times 4!) \times 4! \quad = 2^2 \times (4^4 - 2^2 + 4^4) - 4^4.$$
$$1778 := (1! + (1! + 3! \times 3!) \times 4!) \times 2! = (1^1 + 1^1) \times (-3^3 + (-3^3 + 4^4) \times 2^2).$$
$$1800 := (1! + (1! + 2!) \times 4! + 2!) \times 4! = (1^1 + 1^1) \times (2^2 \times 4^4 + 2^2) - 4^4.$$
$$1847 := -1! + (1! + 2!) \times 4! \times 4! + 5! = 1^1 + 1^1 - 2^2 \times 4^4 - 4^4 + 5^5.$$

$$1872 := 2! \times 4! \times 4! + 3! \times 5! = -2^2 \times 4^4 - 4^4 + 3^3 + 5^5.$$
$$2016 := (1! + 1!) \times 4! \times (4! \times 2! - 3!) = -1^1 + (-1^1 + 4^4 + 4^4) \times 2^2 - 3^3.$$
$$2073 := -1! + (-1! - 3! + 4!) \times (2! + 5!) = -1^1 \times 1^1 - 3^3 - 4^4 \times 2^2 + 5^5.$$
$$2075 := 1! - (1! + 3! - 4!) \times (2! + 5!) = 1^1 \times 1^1 - 3^3 - 4^4 \times 2^2 + 5^5.$$

$$2112 := (2! + 2!) \times 4! \times (4! - 2!) = (2^2 \times 2^2 + 4^4 + 4^4) \times 2^2$$
$$:= (3! + 2!) \times (4! + 2! \times 5!) = 3^3 - (2^2 + 4^4) \times 2^2 + 5^5.$$

$$2126 := 1! + 1! + (3! - 4!) \times (2! - 5!) = -1^1 - 1^1 + 3^3 - 4^4 \times 2^2 + 5^5.$$
$$2136 := (2! \times 3! + 3!) \times 5! - 4! = -2^2 - 3^3 \times 3^3 + 5^5 - 4^4.$$
$$2142 := (-1! \times 1! + 4! - 3!) \times (3! + 5!) = 1^1 + 1^1 - 4^4 - 3^3 \times 3^3 + 5^5.$$
$$2160 := ((2! + 2!) \times 4! - 3!) \times 4! = 2^2 + 2^2 \times (4^4 + 3^3 + 4^4).$$

$$2166 := 1! \times 1! \times 3! - (3! - 4!) \times 5! = -1^1 + (1^1 - 3^3) \times 3^3 - 4^4 + 5^5.$$
$$2167 := 1! + 3! - (3! - 4!) \times 5! = (1^1 - 3^3) \times 3^3 - 4^4 + 5^5.$$
$$2168 := 1! + 1! + 3! - (3! - 4!) \times 5! = 1^1 + (1^1 - 3^3) \times 3^3 - 4^4 + 5^5.$$
$$2296 := (1! + 1! + 2!) \times (-2! + 4! \times 4!) = (1^1 + 1^1) \times (-2^2 + 2^2 \times 4^4) + 4^4.$$

$$2300 := 2! \times (-2! + (4! + 4!) \times 4!) = -2^2 + 2^2 \times (4^4 + 4^4) + 4^4.$$
$$2302 := -1! - 1! + 2! \times 4! \times (4! + 4!) = -1^1 - 1^1 + 2^2 \times (4^4 + 4^4) + 4^4.$$
$$2303 := -1! + (2! + 2!) \times 4! \times 4! = -1^1 + (2^2 + 2^2) \times 4^4 + 4^4.$$
$$2317 := -1! + (1! - 3! + 4!) \times (2! + 5!) = ((1^1 + 1^1) \times 3^3 - 4^4) \times 2^2 + 5^5.$$

$$2349 := -1! + (1! + 4!) \times (-2! - 4! + 5!) = -(1^1 + 1^1 + 4^4) \times 2^2 + 4^4 + 5^5.$$
$$2352 := 1! \times 1! \times 4! \times (2! - 4! + 5!) = -1^1 - (1^1 + 4^4) \times 2^2 + 4^4 + 5^5.$$
$$2353 := 1! + 4! \times (2! - 4! + 5!) = -(1^1 + 4^4) \times 2^2 + 4^4 + 5^5.$$
$$2354 := 1! + 1! + 4! \times (2! - 4! + 5!) = 1^1 - (1^1 + 4^4) \times 2^2 + 4^4 + 5^5.$$

$$2360 := (1! + 1! + 2! - 4!) \times (2! - 5!) = -1^1 + (1^1 - 2^2) \times 4^4 + 2^2 + 5^5.$$
$$2394 := (1! + (1! + 2!) \times 3!) \times (3! + 5!) = 1^1 + 1^1 - 2^2 - 3^3 \times 3^3 + 5^5.$$
$$2399 := -1! + (1! - 3!) \times (-3! + 2!) \times 5! = -1^1 \times 1^1 - 3^3 \times 3^3 + 2^2 + 5^5.$$
$$2400 := (2! - 3!) \times (1! - 3!) \times 5! = 2^2 - 3^3 \times 1^1 \times 3^3 + 5^5.$$

$$2401 := 1! - (1! - 3!) \times (3! - 2!) \times 5! = 1^1 \times 1^1 - 3^3 \times 3^3 + 2^2 + 5^5.$$
$$2544 := (-2! - 3! - 3! + 5!) \times 4! = -(2^2 + 3^3) \times 3^3 + 5^5 + 4^4.$$
$$2586 := (-1! + (1! + 2!) \times (4! + 5!)) \times 3! = (1^1 + 1^1 - 2^2) \times 4^4 + 5^5 - 3^3.$$
$$2590 := -2! + (-3! + 4!) \times (4! + 5!) = 2^2 - 3^3 - 4^4 - 4^4 + 5^5.$$

$$2594 := 1! + 1! - 4! \times (2! \times 3! - 5!) = (1^1 + 1^1) \times (-4^4 + 2^2) - 3^3 + 5^5.$$
$$2597 := 1! \times 1! + (2! - 4!) \times (2! - 5!) = -(1^1 + 1^1) \times (2^2 + 4^4 + 2^2) + 5^5.$$
$$2614 := -1! - 1! + (-2! + 4!) \times 5! - 4! = 1^1 + (1^1 - 2^2) \times 4^4 + 5^5 + 4^4.$$
$$2615 := -1! \times 1! - 4! + (-2! + 4!) \times 5! = -1^1 - 1^1 - 4^4 + 2^2 - 4^4 + 5^5.$$

$$2616 := (-1! \times 2! + 4!) \times 5! - 4! \qquad = -1^1 + 2^2 - 4^4 + 5^5 - 4^4.$$
$$2617 := 1! - (2! - 4!) \times 5! - 4! \qquad = 1^1 \times 2^2 - 4^4 + 5^5 - 4^4.$$
$$2618 := 1! + 1! - 4! + (4! - 2!) \times 5! \quad = 1^1 \times 1^1 - 4^4 - 4^4 + 2^2 + 5^5.$$
$$2619 := 1! \times 1! + (2! - 4!) \times (1! - 5!) = (1^1 + 1^1) \times (2^2 - 4^4 - 1^1) + 5^5.$$

$$2620 := 1! + 1! + (2! - 4!) \times (1! - 5!) = (1^1 + 1^1) \times (2^2 - 4^4) - 1^1 + 5^5.$$
$$2632 := -1! - 1! + (4! - 2!) \times 5! - 3! = -(1^1 + 1^1) \times (4^4 + 2^2) + 5^5 + 3^3.$$
$$2636 := 1! + 1! + (4! - 2!) \times 5! - 3! \quad = -(1^1 + 1^1) \times 4^4 - 2^2 + 5^5 + 3^3.$$
$$2640 := (1! + 1! + 2! + 4! - 3!) \times 5! \quad = (1^1 + 1^1 - 2^2) \times 4^4 + 3^3 + 5^5.$$

$$2644 := -1! - 1! + (4! - 2!) \times 5! + 3! = -(1^1 + 1^1) \times 4^4 + 2^2 + 5^5 + 3^3.$$
$$2648 := 1! + 1! - (2! - 4!) \times 5! + 3! \quad = (1^1 + 1^1) \times (2^2 - 4^4) + 5^5 + 3^3.$$
$$2652 := (-1! - 1! + 4!) \times 5! + 3! + 3! = 1^1 \times 1^1 \times 4^4 + 5^5 - 3^3 \times 3^3.$$
$$2721 := 1! - (1! - 4!) \times (5! - 2!) + 3! = -(1^1 + 1^1) \times 4^4 + 5^5 + 2^2 \times 3^3.$$

$$2733 := -1! \times 1! - 2! + (-3! + 5!) \times 4! = -1^1 - (1^1 + 2^2) \times 3^3 + 5^5 - 4^4.$$
$$2735 := 1! \times 1! - 2! - (3! - 5!) \times 4! \qquad = 1^1 - (1^1 + 2^2) \times 3^3 + 5^5 - 4^4.$$
$$2736 := 3! \times (-4! + (-2! + 3!) \times 5!) \qquad = -3^3 + 4^4 \times (-2^2 + 3^3) - 5^5.$$
$$2759 := -1! + (-1! + 2! - 3! + 5!) \times 4! = -1^1 - 1^1 - 2^2 \times 3^3 + 5^5 - 4^4.$$

$$2761 := 1! - (1! + 3! - 3! - 4!) \times 5! = -(1^1 + 1^1) \times (3^3 + 3^3) - 4^4 + 5^5$$
$$:= 1! - (1! - 5! + 3! - 2!) \times 4! = -1^1 - 1^1 - 5^5 + (3^3 - 2^2) \times 4^4.$$

$$2763 := -1! - (1! - 4!) \times 5! - 2! + 3! = 1^1 + 1^1 - 4^4 + 5^5 - 2^2 \times 3^3.$$
$$2785 := 1! \times 1! + 4! \times (2! - 3! + 5!) \quad = -1^1 + (1^1 + 4^4) \times (-2^2 + 3^3) - 5^5.$$
$$2786 := 1! + 1! + 4! \times (2! - 3! + 5!) \quad = (1^1 \times 1^1 + 4^4) \times (-2^2 + 3^3) - 5^5.$$
$$2790 := 3! + (5! - 3! + 2!) \times 4! \qquad = 3^3 - 5^5 + (3^3 - 2^2) \times 4^4.$$

$$2807 := -1! + (1! + 2! - 3! + 5!) \times 4! \quad = -(1^1 + 1^1) \times (2^2 + 3^3) + 5^5 - 4^4.$$
$$2836 := -1! - 1! + 3! + 4! \times (-2! + 5!) = -1^1 - 1^1 - 3^3 - 4^4 - 2^2 + 5^5.$$
$$2840 := 1! + 1! - 4! \times (2! - 5!) + 3! \qquad = 1^1 + 1^1 - 4^4 - 2^2 + 5^5 - 3^3.$$
$$2842 := -1! - 1! - 3! \times 3! + 4! \times 5! \qquad = -(1^1 + 1^1) \times 3^3 + 3^3 - 4^4 + 5^5.$$

$$2844 := (1! + 1!) \times 3! - (2! - 5!) \times 4! \quad = -1^1 - 1^1 - 3^3 + 2^2 + 5^5 - 4^4.$$
$$2845 := 1! - (1! - 5!) \times 4! - 2! \times 3! \qquad = -1^1 \times 1^1 + 5^5 - 4^4 + 2^2 - 3^3.$$
$$2847 := -1! + (1! + 4!) \times (5! - 3!) - 2! = 1^1 \times 1^1 - 4^4 + 5^5 - 3^3 + 2^2.$$
$$2848 := (1! \times 1! + 4!) \times (-3! + 5!) - 2! = 1^1 + 1^1 - 4^4 - 3^3 + 5^5 + 2^2.$$

$$2850 := (1! \times 1! - 2! - 4!) \times (3! - 5!) \qquad = (1^1 + 1^1) \times 2^2 - 4^4 - 3^3 + 5^5.$$
$$2851 := -1! + (-1! + 4!) \times (2! + 2! + 5!) = -1^1 - 1^1 - 4^4 - 2^2 \times 2^2 + 5^5.$$
$$2852 := (4! - 1!) \times (2! + 2! + 5!) \qquad = -4^4 - 1^1 - 2^2 \times 2^2 + 5^5.$$
$$2853 := 1! + (-1! + 4!) \times (2! + 2! + 5!) \quad = -1^1 \times 1^1 \times 4^4 - 2^2 \times 2^2 + 5^5.$$

$$2854 := -2! + (-2! + 5! + 1!) \times 4! \qquad = -2^2 \times 2^2 + 5^5 + 1^1 - 4^4.$$
$$2855 := -1! + (-1! - 2! + 2! + 5!) \times 4! = 1^1 + 1^1 - 2^2 \times 2^2 + 5^5 - 4^4.$$
$$2856 := (-1! \times 1! + 2! - 2! + 5!) \times 4! \quad = -1^1 + (1^1 - 2^2) \times 2^2 + 5^5 - 4^4.$$
$$2856 := (1! + 1! + 2!) \times (-3! + 3! \times 5!) = 1^1 - (1^1 + 2^2) \times (3^3 + 3^3) + 5^5.$$

$$2857 := 1! \times 1! + (1! - 2! + 5!) \times 4! = -(1^1 + 1^1 + 1^1) \times 2^2 + 5^5 - 4^4.$$
$$2859 := 1! + (1! - 2! + 5!) \times 4! + 2! = -1^1 - 1^1 - 2^2 + 5^5 - 4^4 - 2^2.$$
$$2860 := 2! + 2! + 4! \times (5! - 1!) \qquad = -2^2 - 2^2 - 4^4 + 5^5 - 1^1.$$
$$2861 := 1! - (1! - 5!) \times 4! + 2! + 2! = (1^1 \times 1^1) \times 5^5 - 4^4 - 2^2 - 2^2.$$

$$2867 := -1! \times 1! - 3! - 3! + 4! \times 5! = -1^1 - 1^1 - 3^3 + 3^3 - 4^4 + 5^5.$$
$$2868 := -1! \times 3! + 3! + 4! \times 5! \qquad = -1^1 - 3^3 + 3^3 - 4^4 + 5^5.$$
$$2869 := 1! - 3! - 3! + 4! \times 5! \qquad = (-1^1 - 3^3 + 3^3) \times 4^4 + 5^5.$$
$$2870 := 1! + 1! - 3! - 3! + 4! \times 5! \quad = 1^1 \times 1^1 + 3^3 - 3^3 - 4^4 + 5^5.$$

$$2873 := -1! - (1! + 2!) \times 2! + 4! \times 5! = (1^1 + 1^1) \times 2^2 - 2^2 - 4^4 + 5^5.$$
$$2874 := -(1! + 1! + 1!) \times 2! + 4! \times 5! = 1^1 + 1^1 - 1^1 + 2^2 - 4^4 + 5^5.$$
$$2875 := -1! \times 1! - 2! - 2! + 4! \times 5! \quad = -1^1 - 1^1 + 2^2 + 2^2 - 4^4 + 5^5.$$
$$2876 := -1! \times 2! + 2! + 4! \times 5! \qquad = -1^1 + 2^2 + 2^2 - 4^4 + 5^5.$$

$$2877 := 1! - 2! - 2! + 4! \times 5! \qquad = 1^1 \times 2^2 + 2^2 - 4^4 + 5^5.$$
$$2878 := (1! - 2!) \times 2! + 4! \times 5! \qquad = 1^1 + 2^2 + 2^2 - 4^4 + 5^5.$$
$$2879 := -1! - 1! - 1! + 2! + 4! \times 5! = (1^1 + 1^1) \times (1^1 + 2^2) - 4^4 + 5^5.$$
$$2880 := 2! \times (-2! \times 3! + 4!) \times 5! \quad = -2^2 \times 2^2 + 3^3 - 4^4 + 5^5.$$
$$2881 := 1! + 2! - 2! + 5! \times 4! \qquad = (-1^1 + 2^2) \times 2^2 + 5^5 - 4^4.$$

$$2882 := 2! - (2! - 3!) \times 3! \times 5! = -(2^2 + 2^2) \times 3^3 - 3^3 + 5^5$$
$$:= 2! \times (1! + 2! \times 3! \times 5!) = -(2^2 + 1^1 + 2^2) \times 3^3 + 5^5.$$

$$2883 := -1! \times 1! + 2! + 2! + 4! \times 5! = -1^1 - 1^1 + 2^2 \times 2^2 - 4^4 + 5^5.$$
$$2884 := 1! \times 2! + 2! + 4! \times 5! \qquad = -1^1 + 2^2 \times 2^2 - 4^4 + 5^5.$$
$$2885 := 1! + 2! + 2! + 4! \times 5! \qquad = (1^1 \times 2^2) \times 2^2 - 4^4 + 5^5.$$
$$2886 := (1! + 2!) \times 2! + 4! \times 5! \qquad = 1^1 + 2^2 \times 2^2 - 4^4 + 5^5.$$
$$2887 := 1! + (1! + 2!) \times 2! + 4! \times 5! = 1^1 + 1^1 + 2^2 \times 2^2 - 4^4 + 5^5.$$

$$2888 := -2! \times (2! - 3!) + 4! \times 5! \quad = -2^2 - 2^2 + 3^3 - 4^4 + 5^5.$$
$$2890 := 1! + 1! + 2! + 3! + 4! \times 5! = -1^1 - 1^1 - 2^2 + 3^3 - 4^4 + 5^5.$$
$$2894 := 1! + 1! + 2! \times 3! + 4! \times 5! = 1^1 + 1^1 - 2^2 + 3^3 - 4^4 + 5^5.$$
$$2896 := 2! \times (2! + 3!) + 4! \times 5! \quad = -2^2 + 2^2 + 3^3 - 4^4 + 5^5.$$
$$2897 := -1! - 3! + 4! \times (5! + 1!) \quad = 1^1 + 3^3 - 4^4 + 5^5 \times 1^1.$$

$$2898 := (1! \times 3! + 5!) \times (4! - 1!) \qquad = 1^1 + 3^3 + 5^5 - 4^4 + 1^1.$$
$$2899 := 1! + (1! + 2!) \times 3! + 4! \times 5! \qquad = -1^1 \times 1^1 + 2^2 + 3^3 - 4^4 + 5^5.$$
$$2901 := 1! + (1! + 4!) \times ((2! - 3!) + 5!) = 1^1 \times 1^1 - 4^4 + 2^2 + 3^3 + 5^5.$$
$$2904 := 2! \times 3! \times 2! + 4! \times 5! \qquad = 2^2 + 3^3 + 2^2 - 4^4 + 5^5.$$

$$2908 := (1! + (1! + 5!) \times 3!) \times 2! \times 2! = -1^1 \times 1^1 + 5^5 - 3^3 \times (2^2 + 2^2).$$
$$2910 := (1! + (1! + 5!) \times 2! \times 2!) \times 3! = 1^1 \times 1^1 + 5^5 - (2^2 + 2^2) \times 3^3.$$
$$2912 := (4! + 2!) \times (-2! - 3! + 5!) \qquad = -4^4 + 2^2 \times 2^2 + 3^3 + 5^5.$$

$$2916 := 3! \times (3! + 2! \times (5! + 5!)) = 3^3 \times 3^3 \times 2^2 + 5^5 - 5^5$$
$$:= (6! + 6!) \times 2! + 3! \times 3! \quad = (-6^6 + 6^6 + 2^2) \times 3^3 \times 3^3.$$

$$2921 := -1! + (1! + 3!) \times 3! + 4! \times 5! = -1^1 - 1^1 + 3^3 + 3^3 - 4^4 + 5^5.$$
$$2922 := (1! + 3!) \times 3! + 4! \times 5! \qquad = -1^1 + 3^3 + 3^3 - 4^4 + 5^5.$$
$$2923 := 1! + (1! + 3!) \times 3! + 4! \times 5! \quad = 1^1 \times 1^1 \times 3^3 + 3^3 - 4^4 + 5^5.$$
$$2975 := -1! \times 1! + 4! \times (3! - 2! + 5!) = -1^1 - 1^1 - 4^4 + 3^3 \times 2^2 + 5^5.$$
$$2978 := (1! + 1!) + 4! \times (5! - 2! + 3!) = 1^1 \times 1^1 - 4^4 + 5^5 + 2^2 \times 3^3.$$

$$2999 := -1! + (1! + (2! + 2!) \times 3!) \times 5! = -1^1 - 1^1 - 2^2 \times (2^2 + 3^3) + 5^5.$$
$$3000 := (1! + (2! + 2!) \times 3!) \times 5! \qquad = -1^1 - 2^2 \times (2^2 + 3^3) + 5^5.$$
$$3001 := 1! + (1! + 3! \times 2! \times 2!) \times 5! \qquad = -(1^1 \times 1^1 \times 3^3 + 2^2) \times 2^2 + 5^5.$$
$$3030 := 1! \times 1! \times 3! + 4! \times (3! + 5!) \qquad = -1^1 + (-1^1 - 3^3 + 4^4) \times 3^3 - 5^5.$$
$$3031 := 1! + 3! + 4! \times (3! + 5!) \qquad = (-1^1 - 3^3 + 4^4) \times 3^3 - 5^5.$$

$$3032 := 1! + 1! + 3! + 4! \times (3! + 5!) \quad = 1^1 - (1^1 + 3^3 - 4^4) \times 3^3 - 5^5.$$
$$3071 := -1! + (1! + 3! + 5!) \times 4! + 4! = -(1^1 + 1^1) \times 3^3 + 5^5 - 4^4 + 4^4.$$
$$3096 := (1! + 1! + 3! + 5!) \times 4! + 4! \quad = -1^1 - 1^1 - 3^3 + 5^5 - 4^4 + 4^4.$$
$$3102 := (2! + 4!) \times 5! + 3! - 4! \qquad = 2^2 + 4^4 + 5^5 - 3^3 - 4^4.$$

$$3119 := -1! + (1! + 3! + 3!) \times 2! \times 5! = -1^1 - 1^1 - 3^3 + 3^3 - 2^2 + 5^5$$
$$:= 1! - (1! - 5!) \times (2! + 4!) + 4! = -1^1 - 1^1 + 5^5 - 2^2 - 4^4 + 4^4$$
$$:= -1! \times 1! + 2! \times (5! + 6! + 6!) = -1^1 - 1^1 - 2^2 + 5^5 - 6^6 + 6^6.$$

$$3120 := 5! \times (3! \times 2! \times 2! + 2!) \quad = 5^5 + 3^3 - (2^2 + 2^2) \times 2^2$$
$$:= 1! \times 2! \times (5! + 6! + 6!) \quad = -1^1 - 2^2 + 5^5 - 6^6 + 6^6$$
$$:= 5! \times ((1! + 4!) \times 2! - 4!) = 5^5 - 1^1 + 4^4 - 2^2 - 4^4$$
$$:= 5! \times 2! \times (3! + 3! + 1!) \quad = 5^5 - 2^2 + 3^3 - 3^3 - 1^1.$$

$$3121 := 1! + 2! \times (5! + 6! + 6!) = -1^1 \times 2^2 + 5^5 - 6^6 + 6^6.$$

$$3122 := (1! + 5!) \times (2! + 4!) - 4! = 1^1 + 5^5 - 2^2 + 4^4 - 4^4$$
$$:= (5! + 6! + 6! + 1!) \times 2! \quad = 5^5 + 6^6 - 6^6 + 1^1 - 2^2.$$

$$3123 := 1! + (1! + 5!) \times (2! + 4!) - 4! = 1^1 + 1^1 + 5^5 - 2^2 + 4^4 - 4^4$$
$$:= 1! + (1! + 5! + 6! + 6!) \times 2! \quad = 1^1 + 1^1 + 5^5 + 6^6 - 6^6 - 2^2.$$

$$3150 := (1! + 1! + 4!) \times 5! + 3! + 4! \quad = -1^1 - 1^1 - 4^4 + 5^5 + 3^3 + 4^4.$$
$$3166 := -2! + 4! \times (3! + 3! + 5!) \quad = (2^2 + 4^4 - 3^3) \times 3^3 - 5^5.$$
$$3180 := 3! \times (4! \times (4! - 2!) + 2!) \quad = (3^3 - 4^4 + 4^4 \times 2^2) \times 2^2.$$
$$3240 := (1! + (1! + 2! \times 3!) \times 2!) \times 5! = (1^1 \times 1^1 + 2^2) \times (3^3 - 2^2) + 5^5.$$

$$3274 := -1! - 1! + (4! + 2!) \times (3! + 5!) = 1^1 \times 1^1 + 4^4 - 2^2 \times 3^3 + 5^5.$$
$$3275 := -1! \times 1! + (4! + 2!) \times (3! + 5!) = 1^1 + 1^1 + 4^4 - 2^2 \times 3^3 + 5^5.$$
$$3342 := 3! + (3! \times 4!) \times 4! - 5! \quad = 3^3 \times 3^3 - 4^4 - 4^4 + 5^5.$$

$$3352 := (1! + 1! + 2!) \times (5! - 2! + 6!) \quad = (1^1 + 1^1 + 2^2 \times 5^5) \times 2^2 - 6^6.$$
$$3354 := (2! + 2! + 4!) \times 5! - 3! \quad = -2^2 + 2^2 + 4^4 + 5^5 - 3^3.$$
$$3358 := -1! - 1! + (-2! + 3! + 4!) \times 5! = 1^1 \times 1^1 \times 2^2 - 3^3 + 4^4 + 5^5.$$

$$3360 := 2! \times (2! \times 5! + 2! \times 6!) \quad = (2^2 + 2^2 \times 5^5) \times 2^2 - 6^6$$
$$:= (2! + 2!) \times 1! \times (5! + 6!) = 2^2 \times 2^2 \times (1^1 + 5^5) - 6^6.$$

$$3361 := 1! + (2! + 2! + 4!) \times 5! \quad = -(1^1 + 2^2) \times 2^2 + 4^4 + 5^5.$$
$$3362 := 2! - (2! - 3! - 4!) \times 5! \quad = 2^2 + 2^2 - 3^3 + 4^4 + 5^5.$$
$$3385 := 1! - (1! - 4! + 2! - 5!) \times 4! \quad = (1^1 + 1^1) \times 4^4 + 2^2 + 5^5 - 4^4.$$
$$3387 := -1! + (1! + 5!) \times (4! + 2! + 2!) = -1^1 - 1^1 + 5^5 + 4^4 + 2^2 + 2^2.$$

$$3388 := (1! + 5!) \times (2! + 2! + 4!) \quad = -1^1 + 5^5 + 2^2 + 2^2 + 4^4.$$
$$3402 := (1! \times 1! + 2! + 4!) \times (3! + 5!) \quad = -1^1 - 1^1 - 2^2 + 4^4 + 3^3 + 5^5.$$
$$3403 := 1! + (1! + 2! + 4!) \times (3! + 5!) \quad = -1^1 \times 1^1 - 2^2 + 4^4 + 3^3 + 5^5.$$
$$3408 := -(1! + (1! - 4!) \times 3!) \times 4! + 5! = (1^1 + 1^1) \times 4^4 + 3^3 - 4^4 + 5^5.$$

$$3416 := (2! + 5!) \times (4! + 3! - 2!) \quad = 2^2 + 5^5 + 4^4 + 3^3 + 2^2.$$
$$3421 := -1! + (1! - 4! - 3!) \times (2! - 5!) = (1^1 + 1^1) \times (4^4 - 3^3 \times 2^2) + 5^5.$$
$$3462 := (1! \times 1! - 3! \times (4! - 5!)) \times 3! \quad = (1^1 + 1^1) \times 3^3 + 4^4 + 5^5 + 3^3.$$
$$3462 := 3! - 3! \times 3! \times (4! - 5!) \quad = 3^3 + 3^3 + 3^3 + 4^4 + 5^5.$$

$$3479 := -1! \times 1! + (4! + 3! - 1!) \times 5! = (1^1 + 1^1 - 4^4) \times (-3^3 + 1^1) - 5^5.$$
$$3481 := 1! + (1! + 3! - 2! + 4!) \times 5! \quad = (-1^1 - 1^1 + 3^3) \times 2^2 + 4^4 + 5^5.$$
$$3503 := -1! - (1! - 4! - 3!) \times 5! + 4! = -1^1 + (-1^1 + 4^4) \times 3^3 - 5^5 - 4^4.$$
$$3504 := 5! \times (3! - 1! + 4!) + 4! \quad = -5^5 + 3^3 \times (-1^1 + 4^4) - 4^4.$$

$$3505 := 1! - (1! - 4! - 3!) \times 5! + 4! \quad = 1^1 - (1^1 - 4^4) \times 3^3 - 5^5 - 4^4.$$
$$3596 := 1! + 1! - 3! + (3! + 4!) \times 5! \quad = -1^1 - 1^1 + 3^3 \times 3^3 - 4^4 + 5^5.$$
$$3597 := -1! \times 1! - 2! + (3! + 4!) \times 5! \quad = (1^1 + 1^1) \times 2^2 \times 3^3 + 4^4 + 5^5.$$
$$3599 := -1! + ((-1! + 3!) \times 3! + 5!) \times 4! = 1^1 \times 1^1 + 3^3 \times 3^3 + 5^5 - 4^4.$$

$$3600 := (-2! + 2! + 5!) \times 4! + 6! = 2^2 \times 2^2 \times 5^5 + 4^4 - 6^6.$$
$$3602 := 1! \times 1! \times 2! + (4! + 3!) \times 5! = (1^1 + 1^1) \times (-2^2 + 4^4) - 3^3 + 5^5.$$
$$3625 := 1! - (1! - 3!) \times 3! \times 5! + 4! = (1^1 \times 1^1 + 3^3) \times 3^3 + 5^5 - 4^4.$$
$$3660 := (1! \times 1! \times 4! + 3!) \times (2! + 5!) = (1^1 + 1^1) \times 4^4 + 3^3 - 2^2 + 5^5.$$
$$3689 := (1! \times 1! + 3! + 4!) \times (-1! + 5!) = (1^1 + 1^1) \times (3^3 + 4^4 - 1^1) + 5^5.$$
$$3690 := 1! - (1! + 4! + 3!) \times (1! - 5!) = (1^1 + 1^1) \times (4^4 + 3^3) - 1^1 + 5^5.$$
$$3691 := 1! - (1! - 5!) \times (3! + 4!) + 5! = (1^1 + 1^1) \times (5^5 + 3^3 + 4^4) - 5^5.$$
$$3720 := (1! + (1! - 2! + 3!) \times 3!) \times 5! = 1^1 - (((1^1 + 2^2) - 3^3) \times 3^3) + 5^5.$$
$$3732 := ((4! + 2!) \times 4! - 2!) \times 3! = -4^4 + 2^2 \times (4^4 \times 2^2 - 3^3).$$
$$3781 := -1! + (1! + 3! + 4!) \times (2! + 5!) = -1^1 - 1^1 + 3^3 \times 4^4 - 2^2 - 5^5.$$
$$3783 := 1! + (1! + 3! + 4!) \times (2! + 5!) = 1^1 \times 1^1 \times 3^3 \times 4^4 - 2^2 - 5^5.$$
$$3840 := (1! + 1! \times 1! + 4! + 3!) \times 5! = -1^1 + (1^1 + 1^1 + 4^4) \times 3^3 - 5^5.$$
$$3841 := 1! \times 1! + (2! + 4! + 3!) \times 5! = (-1^1 - 1^1 + 2^2 + 4^4) \times 3^3 - 5^5.$$
$$3888 := (1! \times 1! + 4! + 2!) \times (4! + 5!) = -1^1 - (1^1 - 4^4) \times 2^2 - 4^4 + 5^5.$$
$$3889 := 1! + (1! + 4! + 2!) \times (4! + 5!) = (1^1 + 1^1) \times 4^4 - 2^2 + 4^4 + 5^5.$$
$$3960 := (-1! \times 1! - 2! + 3! \times 3!) \times 5! = -1^1 - 1^1 + (2^2 + 3^3) \times 3^3 + 5^5.$$
$$3961 := 1! - (1! + 2! - 3! \times 3!) \times 5! = -1^1 \times 1^1 + (2^2 + 3^3) \times 3^3 + 5^5.$$
$$4056 := (-1! - 1! + 3! \times 3!) \times 5! - 4! = -(1^1 + 1^1 - 3^3) \times 3^3 + 5^5 + 4^4.$$
$$4284 := (3! \times 5! - 2!) \times 3! - 4! = 3^3 + 5^5 + 2^2 \times (3^3 + 4^4).$$
$$4326 := ((1! + 1!) \times 3! + 4!) \times 5! + 3! = (1^1 + 1^1 + 3^3) \times 4^4 - 5^5 + 3^3.$$
$$4367 := 1! - (1! + 3! \times 3!) \times (2! - 5!) = (1^1 + 1^1) \times 3^3 \times (3^3 - 2^2) + 5^5.$$
$$4368 := (2! + 5!) \times 4! + (2! \times 6!) = (2^2 \times 5^5 + 4^4) \times 2^2 - 6^6.$$
$$4462 := -1! - 1! + 3! \times (4! + 3! \times 5!) = (-1^1 - 1^1 + 3^3 + 4^4) \times 3^3 - 5^5.$$
$$4536 := (1! + 1!) \times (5! + 3!) \times (-3! + 4!) = (1^1 + 1^1) \times (5^5 - 3^3 \times 3^3) - 4^4.$$
$$4608 := 2! \times (-2! + 3!) \times 4! \times 4! = (-2^2 - 2^2 + 3^3) \times 4^4 - 4^4.$$
$$4799 := -1! + (-1! + 3!) \times (2! + 3!) \times 5! = (1^1 + 1^1) \times 3^3 \times (2^2 + 3^3) + 5^5.$$
$$4800 := (1! + 1! + 2! + 3! \times 3!) \times 5! = (1^1 + 1^1) \times (2^2 - 3^3 \times 3^3 + 5^5).$$
$$5234 := (-1! + (1! - 5!) \times (2! - 4!)) \times 2! = (1^1 + 1^1) \times (5^5 + 2^2) - 4^4 \times 2^2.$$
$$5280 := (1! + 1! - 3! + 4! + 4!) \times 5! = (1^1 + 1^1) \times (3^3 - 4^4 - 4^4 + 5^5).$$
$$5400 := (1! \times 1! + 4!) \times 3! \times 3! \times 3! = (-1^1 - 1^1 + 4^4 - 3^3 - 3^3) \times 3^3.$$
$$5474 := (1! \times 1! - 5!) \times (2! - 4! - 4!) = (1^1 + 1^1) \times (5^5 - 2^2 - 4^4) - 4^4.$$
$$5591 := -1! + (-1! + 5! \times 2! - 3!) \times 4! = -1^1 + (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4.$$
$$5592 := (-1! + 5! \times 2! - 3!) \times 4! = (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4.$$
$$5593 := 1! - (1! - 5! \times 2! + 3!) \times 4! = 1^1 + (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4.$$
$$5614 := -1! - 1! + 4! \times (-3! + 2! \times 5!) = -1^1 + (1^1 - 4^4) \times 3^3 + 2^2 \times 5^5.$$
$$5616 := 1! \times 1! \times 4! \times (-3! + 2! \times 5!) = 1^1 + (1^1 - 4^4) \times 3^3 + 2^2 \times 5^5.$$

$$5676 := (1!+1!)\times(3!+4!\times(5!-2!)) \quad = (1^1+1^1)\times(-3^3-4^4+5^5-2^2).$$
$$5706 := (-1!+(-1!+5!)\times 4!-2!)\times 2! = (1^1+1^1)\times(5^5-4^4-2^2\times 2^2).$$
$$5707 := 1!-(1!-5!)\times 4!\times 2!-3! \quad = (1^1+1^1)\times(5^5-4^4)-2^2-3^3.$$
$$5719 := 1!-(1!-5!)\times 2!\times 4!+3! \quad = (1^1+1^1)\times(5^5+2^2-4^4)-3^3.$$
$$5734 := -2!-4!+4!\times(5!+5!) \quad = -2^2-4^4-4^4+5^5+5^5.$$

$$5735 := -1!+(-1!+(1!+1!)\times 5!)\times 4! = -1^1+(1^1+1^1)\times(-1^1+5^5-4^4)$$
$$:= -1!\times 1!+4!\times(5!\times 2!-1!) \quad = -(1^1+1^1)\times(4^4-5^5)+2^2+1^1.$$

$$5736 := (-1!+(1!+1!)\times 5!)\times 4! = (1^1+1^1)\times(-1^1+5^5-4^4).$$
$$5737 := 1!-4!+4!\times(5!+5!) \quad = -1^1-4^4-4^4+5^5+5^5.$$

$$5738 := 1!+1!+4!\times(5!-1!+5!) = -(1^1+1^1)\times 4^4+5^5\times 1^1+5^5$$
$$:= 1!+1!+2!\times 5!\times 4!-4! \quad = (-1^1-1^1+2^2)\times 5^5-4^4-4^4.$$

$$5754 := -1!-1!+2!\times(-2!+4!\times 5!) = (1^1+1^1)\times(2^2+2^2-4^4+5^5).$$
$$5757 := 1!+(1!+4!\times 5!)\times 2!-3! \quad = -(1^1+1^1)\times(4^4-5^5+2^2)+3^3.$$
$$5764 := (1!+1!)\times(4!\times 5!-1!)+3! \quad = -(1^1+1^1)\times(4^4-5^5)-1^1+3^3.$$
$$5765 := (1!+1!)\times 4!\times 5!-1!+3! \quad = -(1^1+1^1)\times(4^4-5^5)\times 1^1+3^3.$$

$$5766 := (1!+1!)\times 1!\times 4!\times 5!+3! = 1^1-(1^1+1^1)\times(4^4-5^5)+3^3.$$
$$5767 := 1!+(1!+1!)\times 4!\times 5!+3! = (1^1+1^1)\times(1^1-4^4+5^5)+3^3.$$
$$5769 := 1!+(1!+4!\times 5!)\times 2!+3! = -(1^1+1^1)\times(4^4-5^5)+2^2+3^3.$$
$$5773 := 1!\times 1!+2!\times(4!\times 5!+3!) = (1^1+1^1)\times(2^2-4^4+5^5)+3^3.$$

$$5784 := (1!+1!)\times(2!\times 3!+4!\times 5!) \quad = (1^1+1^1)\times(-2^2+3^3-4^4+5^5).$$
$$5790 := ((1!+1!)\times 5!+1!)\times 4!+3! \quad = (1^1+1^1)\times(5^5-1^1-4^4+3^3).$$
$$5796 := (-1!\times 1!+4!)\times(3!+5!)\times 2! \quad = -(1^1+1^1)\times(4^4-3^3-5^5)+2^2.$$
$$5800 := ((-1!+((1!+5!)\times 4!))\times 2!)-3! = (1^1+1^1)\times(5^5-4^4+2^2+3^3).$$

$$5844 := (1!+1!)\times(-3!+(4!\times(2!+5!))) = (1^1\times 1^1-3^3)\times 4^4+2^2\times 5^5.$$
$$5886 := 3!+2!\times 4!\times 5!+5! \quad = -3^3\times 2^2-4^4+5^5+5^5.$$
$$5996 := (1!+1!)\times((5!-2!)+(4!\times 5!)) \quad = -1^1-1^1+5^5+2^2-4^4+5^5.$$
$$5997 := (-1!+((1!+4!)\times(5!+5!)))-2! = -1^1\times 1^1-4^4+5^5+5^5+2^2.$$

$$5998 := (5!+5!)\times(4!+1!)-2! \quad = 5^5+5^5-4^4\times 1^1+2^2.$$
$$5999 := -1!+2!\times(4!\times 5!+5!) \quad = 1^1+2^2-4^4+5^5+5^5.$$
$$6000 := (1!+1!)\times((2!+4!)\times 5!-5!) = 1^1+1^1+2^2-4^4+5^5+5^5.$$
$$6001 := 1!\times 1!+2!\times 5!\times(1!+4!) \quad = (1^1+1^1)\times(2^2+5^5)-1^1-4^4.$$

$$6002 := 2!+2!\times(4!\times 5!+5!) \quad = 2^2+2^2-4^4+5^5+5^5.$$
$$6004 := (1!+1!)\times(2!+5!\times(1!+4!)) = (1^1+1^1)\times(2^2+5^5+1^1)-4^4.$$
$$6025 := 1!-(1!-(5!+3!)\times 2!)\times 4! \quad = (1^1+1^1)\times 5^5+3^3+2^2-4^4.$$

$$6044 := (-1! - 1! + (3! + 5!) \times 4!) \times 2! \quad = (1^1 + 1^1) \times (3^3 + 5^5) - 4^4 - 2^2.$$
$$6046 := (1! + 1!) \times (-1! + (3! + 5!) \times 4!) = (1^1 + 1^1) \times (-1^1 + 3^3 + 5^5) - 4^4.$$
$$6047 := -1! + (1! + 1!) \times (3! + 5!) \times 4! \quad = -1^1 + (1^1 + 1^1) \times (3^3 + 5^5) - 4^4.$$

$$6048 := (3! + 3! + 5! + 5!) \times 4! \quad = 3^3 + 3^3 + 5^5 + 5^5 - 4^4$$
$$:= (1! + 1!) \times (3! + 5!) \times 4! = (1^1 + 1^1) \times (3^3 + 5^5) - 4^4.$$

$$6049 := 1! + (1! + 1!) \times (3! + 5!) \times 4! \quad = 1^1 + (1^1 + 1^1) \times (3^3 + 5^5) - 4^4.$$
$$6050 := (1! + 1!) \times (1! + (3! + 5!) \times 4!) = (1^1 + 1^1) \times (1^1 + 3^3 + 5^5) - 4^4.$$
$$6052 := (1! + 1! + (3! + 5!) \times 4!) \times 2! \quad = (1^1 + 1^1) \times (3^3 + 5^5) - 4^4 + 2^2.$$
$$6479 := -1! \times 1! + 5! \times (4! + 4! + 3!) \quad = (1^1 + 1^1) \times (5^5 + 4^4) - 4^4 - 3^3.$$

$$6480 := (1! + 1!) \times 4! \times 5! + 3! \times 5! \quad = 1^1 \times 1^1 + 4^4 + 5^5 - 3^3 + 5^5.$$
$$6533 := -1! + (1! + 5!) \times (4! + 4! + 3!) = (1^1 + 1^1) \times (5^5 + 4^4) - 4^4 + 3^3.$$
$$6552 := (1! + 1!) \times (3! + 5!) \times (2! + 4!) = (1^1 + 1^1) \times (3^3 + 5^5 - 2^2) + 4^4.$$
$$6624 := (-1! \times 1! + 4!) \times 3! \times 2! \times 4! \quad = -1^1 + (-1^1 + 4^4) \times 3^3 - 2^2 - 4^4.$$

$$6625 := 1! - (1! - 4!) \times 3! \times 4! \times 2! \quad = (-1^1 \times 1^1 + 4^4) \times 3^3 - 4^4 - 2^2.$$
$$6792 := (1! - (1! - 2! \times 4!) \times 3!) \times 4! \quad = 1^1 + (1^1 + 2^2 + 4^4) \times 3^3 - 4^4.$$
$$6908 := (-1! - 1! + 3! \times 4! \times 4!) \times 2! \quad = (1^1 \times 1^1 + 3^3) \times 4^4 - 4^4 - 2^2.$$
$$6909 := -1! + (-1! + 3! \times 4! \times 4!) \times 2! = 1^1 + (1^1 + 3^3) \times 4^4 - 4^4 - 2^2.$$

$$6910 := -1! - 1! + 3! \times 4! \times (4! + 4!) = -1^1 - 1^1 + (3^3 + 4^4 - 4^4) \times 4^4.$$
$$6911 := -1! + 3! \times 4! \times (4! + 4!) \quad = -1^1 + (3^3 + 4^4 - 4^4) \times 4^4.$$
$$6912 := 3! \times 4! \times (4! + 4!) \quad = (3^3 + 4^4 - 4^4) \times 4^4.$$
$$6913 := 1! + 3! \times 4! \times (4! + 4!) \quad = 1^1 + (3^3 + 4^4 - 4^4) \times 4^4.$$

$$6914 := 1! + 1! + 3! \times 4! \times (4! + 4!) \quad = 1^1 + 1^1 + (3^3 + 4^4 - 4^4) \times 4^4.$$
$$6915 := 1! + (1! + 3! \times 4! \times 4!) \times 2! \quad = -1^1 + (1^1 + 3^3) \times 4^4 - 4^4 + 2^2.$$
$$6916 := (1! + 1! + 3! \times 4! \times 4!) \times 2! \quad = (1^1 \times 1^1 + 3^3) \times 4^4 - 4^4 + 2^2.$$
$$7032 := (-1! + (1! + 2! \times 4!) \times 3!) \times 4! = -1^1 - (1^1 + 2^2 - 4^4) \times 3^3 + 4^4.$$

$$7062 := (1! + (1! + 4! \times 2!) \times 4!) \times 3! \quad = 1^1 + 1^1 + 4^4 - (2^2 - 4^4) \times 3^3.$$
$$7169 := -1! + (-1! + 5! + 5!) \times (3! + 4!) = 1^1 + (1^1 + 5^5 - 5^5 + 3^3) \times 4^4.$$
$$7198 := (-1! + (1! + 4!) \times 3! \times 4!) \times 2! \quad = -1^1 + (1^1 + 4^4) \times 3^3 + 4^4 + 2^2.$$
$$7199 := -1! + (1! + 4!) \times 3! \times 4! \times 2! \quad = (1^1 \times 1^1 + 4^4) \times 3^3 + 4^4 + 2^2.$$

$$7917 := -1! \times 1! - 2! + 4! \times 5! + 7! \quad = -1^1 - (1^1 + 2^2 + 4^4) \times 5^5 + 7^7.$$
$$7919 := 1! \times 1! - 2! + 4! \times 5! + 7! \quad = 1^1 - (1^1 + 2^2 + 4^4) \times 5^5 + 7^7.$$
$$8400 := ((2! + 1!) \times 4! - 2!) \times 5! \quad = 2^2 \times (-1^1 - 4^4 \times 2^2 + 5^5).$$
$$8526 := -(1! - (1! + 2!) \times 4!) \times 5! + 3! = (1^1 \times 1^1 - 2^2) \times (4^4 - 5^5 + 3^3).$$

$$8618 := (-1! + (1! + 2!) \times 5!) \times 4! + 2! = -1^1 + (1^1 - 2^2) \times (-5^5 + 4^4 - 2^2).$$
$$8633 := -1! + (1! + 2!) \times 4! \times 5! - 3! = -1^1 + (1^1 - 2^2) \times (4^4 - 5^5) + 3^3.$$
$$8635 := 1! + (1! + 2!) \times 4! \times 5! - 3! = 1^1 + (1^1 - 2^2) \times (4^4 - 5^5) + 3^3.$$
$$8640 := (2! \times 3! + 4! - 4!) \times 6! = 2^2 \times 3^3 \times (4^4 + 4^4) - 6^6.$$

$$8645 := -1! + (1! + 2! \times 5! \times 3!) \times 3! = -1^1 + (-1^1 + 2^2) \times 5^5 - 3^3 \times 3^3.$$
$$8646 := (1! + 2! \times 5! \times 3!) \times 3! = (-1^1 + 2^2) \times 5^5 - 3^3 \times 3^3.$$
$$8647 := 1! + (1! + 2! \times 5! \times 3!) \times 3! = 1^1 - (1^1 - 2^2) \times 5^5 - 3^3 \times 3^3.$$
$$9119 := -1! + (1! + 4! - 5!) \times (4! - 5!) = -(1^1 + 1^1) \times (4^4 - 5^5) + 4^4 + 5^5.$$
$$9120 := (1! + (1! + 4!) \times (1! + 2!)) \times 5! = 1^1 \times 1^1 - 4^4 - (1^1 - 2^2) \times 5^5.$$

$$10560 := (1! + 1! - 4!) \times 5! \times (-3! + 2!) = (-(1^1 + 1^1) \times 4^4 + 5^5 + 3^3) \times 2^2.$$
$$11041 := 1! + (1! + 4!) \times 2! \times 5! + 7! = -1^1 - 1^1 - (4^4 + 2^2) \times 5^5 + 7^7.$$
$$11423 := -1! + (1! + 5! - 2!) \times (-4! + 5!) = (1^1 + 1^1) \times (5^5 + 2^2 \times 4^4) + 5^5.$$
$$11470 := (-1! + (-1! + 2! \times 5!) \times 4!) \times 2! = -1^1 - 1^1 - 2^2 + (5^5 - 4^4) \times 2^2.$$
$$11471 := -1! + (-1! + 2! \times 5!) \times 4! \times 2! = -1^1 \times 1^1 - 2^2 + (5^5 - 4^4) \times 2^2.$$

$$11472 := 4! \times (-2! + (2! + 2!) \times 5!) = -4^4 \times 2^2 - 2^2 + 2^2 \times 5^5$$
$$:= (-1! + 2! \times 5!) \times 4! \times 2! = 1^1 \times 2^2 \times (5^5 - 4^4) - 2^2.$$

$$11473 := 1! - (1! - 2! \times 5!) \times 4! \times 2! = 1^1 \times 1^1 - 2^2 + (5^5 - 4^4) \times 2^2.$$
$$11474 := (1! - (1! - 2! \times 5!) \times 4!) \times 2! = 1^1 + 1^1 - 2^2 + (5^5 - 4^4) \times 2^2.$$
$$11496 := ((2! + 2!) \times 5! - 1!) \times 4! = 2^2 \times (2^2 + 5^5 + 1^1 - 4^4).$$
$$11508 := (1! + 1!) \times (4! \times 5! \times 2! - 3!) = 1^1 + (1^1 - 4^4 + 5^5) \times 2^2 + 3^3.$$

$$11520 := (2! - 3! + 4!) \times 4! \times 4! = (-2^2 + 3^3) \times (4^4 + 4^4) - 4^4.$$
$$11568 := (2! - (2! - 3!) \times 5!) \times 4! = 2^2 \times (-2^2 + 3^3 + 5^5 - 4^4).$$
$$11880 := (-1! + (1! + 4!) \times (-2! + 3!)) \times 5! = -(1^1 + 1^1) \times 4^4 + 2^2 \times (-3^3 + 5^5).$$
$$12004 := (1! + (1! + 4!) \times 5!) \times 2! \times 2! = -(1^1 + 1^1) \times 4^4 + (5^5 + 2^2) \times 2^2.$$

$$12096 := (4! + 4!) \times 2! \times (3! + 5!) = -4^4 - 4^4 + 2^2 \times (3^3 + 5^5)$$
$$:= (3! - 4!) \times (2! \times 4! - 6!) = -3^3 \times (4^4 \times 2^2 + 4^4) + 6^6.$$

$$12240 := (1! + (1! + 4!) \times 2!) \times 2! \times 5! = -1^1 \times 1^1 \times 4^4 + 2^2 + 2^2 \times 5^5.$$

$$13824 := (2! + 2!) \times 3! \times 4! \times 4! = (-2^2 + 2^2 + 3^3) \times (4^4 + 4^4)$$
$$:= (3! \times 5! - 4! - 5!) \times 4! = 3^3 \times (5^5 + 4^4 - 5^5 + 4^4).$$

$$14784 := (4! - 2!) \times (-2! \times 4! + 6!) = (4^4 - 2^2 \times 2^2) \times 4^4 - 6^6.$$
$$15396 := (2! + 5!) \times (3! + 5!) + 4! = 2^2 \times 5^5 + 3^3 + 5^5 - 4^4.$$
$$15599 := -1! + ((-1! + 3!) \times 2! + 5!) \times 5! = 1^1 \times 1^1 - 3^3 + 2^2 \times 5^5 + 5^5.$$
$$15600 := (1! + 1! + 2! + 5! + 3!) \times 5! = 1^1 + 1^1 + 2^2 \times 5^5 - 3^3 + 5^5.$$

$$15844 := 5! \times 5! + 2! \times (2! + 6!) = (5^5 + 5^5 \times 2^2) \times 2^2 - 6^6.$$
$$16128 := (-2! + 3! + 4!) \times 4! \times 4! = (2^2 + 3^3) \times (4^4 + 4^4) + 4^4.$$
$$16704 := (-2! + 5! - 2!) \times 4! \times 3! = 2^2 \times (5^5 + 2^2 \times 4^4 + 3^3).$$
$$17039 := -1! \times 1! + (-2! + 3! \times 4!) \times 5! = -1^1 + (1^1 + 2^2) \times (3^3 + 4^4 + 5^5).$$

$$17041 := 1! \times 1! - (2! - 3! \times 4!) \times 5! = 1^1 + (1^1 + 2^2) \times (3^3 + 4^4 + 5^5).$$
$$17161 := 1! + (1! - 2! + 4! + 5!) \times 5! = (1^1 + 1^1 + 2^2) \times (4^4 + 5^5) - 5^5.$$
$$17352 := 1! \times 1! \times 4! + 4! \times (2! + 6!) = (1^1 + 1^1 - 4^4) \times (-4^4 + 2^2) - 6^6.$$
$$17376 := (1! + 1! + 2! + 3! \times 5!) \times 4! = (1^1 + 1^1 + 2^2) \times (3^3 + 5^5 - 4^4).$$

$$17852 := -2! - 2! + 4! \times (4! + 6!) = -2^2 + (-2^2 + 4^4) \times 4^4 - 6^6.$$
$$17854 := -1! \times 1! \times 2! + 4! \times (4! + 6!) = -1^1 - 1^1 + (-2^2 + 4^4) \times 4^4 - 6^6.$$
$$17855 := 1! - 2! + 4! \times (4! + 6!) = -1^1 + (-2^2 + 4^4) \times 4^4 - 6^6.$$

$$17856 := (-4! + 4! \times 2!) \times (4! + 6!) = 4^4 \times 4^4 - 2^2 \times 4^4 - 6^6$$
$$:= (-1! + 2!) \times 4! \times (4! + 6!) = (-1^1 \times 2^2 + 4^4) \times 4^4 - 6^6.$$

$$17857 := -1! + 2! + 4! \times (4! + 6!) = 1^1 - (2^2 - 4^4) \times 4^4 - 6^6.$$
$$17858 := 1! \times 1! \times 2! + 4! \times (4! + 6!) = 1^1 + 1^1 - (2^2 - 4^4) \times 4^4 - 6^6.$$
$$17860 := 2! + 2 + 4! \times (4! + 6!) = 2^2 - (2^2 - 4^4) \times 4^4 - 6^6.$$
$$18623 := -1! + (1! + 4!) \times (4! + 6!) + 4! = -1^1 \times 1^1 + 4^4 \times 4^4 - 6^6 - 4^4.$$

$$18624 := 4! + (1! + 4!) \times (4! + 6!) = (4^4 \times 1^1) \times 4^4 - 4^4 - 6^6.$$
$$18625 := (4! + 1!) \times (4! + 1! + 6!) = (4^4 - 1^1) \times 4^4 + 1^1 - 6^6.$$
$$18626 := 1! + (1! + 4!) \times (1! + 4! + 6!) = 1^1 + 1^1 + (4^4 - 1^1) \times 4^4 - 6^6.$$
$$19008 := (-1! - 1! + 4!) \times (4! \times 3! + 6!) = -(1^1 + 1^1) \times (4^4 + 4^4) \times 3^3 + 6^6.$$

$$19396 := (1! + 1! + 4!) \times (4! + 2! + 6!) = (1^1 + 1^1 + 4^4) \times 4^4 + 2^2 - 6^6.$$
$$20160 := ((1! + 1!) \times (2! + 4!) - 4!) \times 6! = (1^1 \times 1^1 + 2^2 + 4^4) \times 4^4 - 6^6.$$
$$20586 := (-1! + (-1! + 5! + 4!) \times 4!) \times 3! = (1^1 + 1^1) \times (5^5 + 4^4 + 4^4 \times 3^3).$$

$$23104 := (2! + 3! + 4!) \times (2! + 6!) = (2^2 - 3^3) \times 4^4 \times 2^2 + 6^6.$$
$$24960 := (4! + 2!) \times (2! + 3!) \times 5! = -4^4 + (2^2 + 2^2) \times (3^3 + 5^5).$$
$$25919 := -1! \times 1! + (2! \times 3! + 4!) \times 6! = -1^1 + (1^1 - 2^2) \times 3^3 \times 4^4 + 6^6.$$

$$25920 := (4! + 4! - 2! \times 3!) \times 6! = (4^4 - 4^4 \times 2^2) \times 3^3 + 6^6$$
$$:= (-3! - 3! + 2! \times 4!) \times 6! = (3^3 - 3^3 \times 2^2) \times 4^4 + 6^6.$$

$$25921 := 1! \times 1! + (2! \times 3! + 4!) \times 6! = 1^1 + (1^1 - 2^2) \times 3^3 \times 4^4 + 6^6.$$
$$27358 := -(1! + 1!) - 4! \times 5! + 3! \times 7! = 1^1 - (1^1 + 4^4) \times (5^5 - 3^3) + 7^7.$$
$$32832 := (1! + 1!) \times (6! - 3! \times 3!) \times 4! = 1^1 \times 1^1 \times 6^6 - (3^3 + 3^3) \times 4^4.$$
$$34416 := 2! \times (4! \times (6! + 2!) - 5!) = 2^2 + 4^4 + 6^6 - 2^2 \times 5^5.$$
$$35712 := 1! \times 1! \times 2! \times 4! \times (4! + 6!) = (1^1 + 1^1) \times ((-2^2 + 4^4) \times 4^4 - 6^6).$$

$$37464 := (1! + (1! + 3!) \times 5! + 6!) \times 4! = 1^1 \times 1^1 + 3^3 \times 5^5 - 6^6 - 4^4.$$
$$39599 := -1! + (1! + 3! + 2! \times 4!) \times 6! = -1^1 + (1^1 + 3^3) \times (2^2 - 4^4) + 6^6.$$
$$39601 := 1! + (1! + 3! + 2! \times 4!) \times 6! = 1^1 + (1^1 + 3^3) \times (2^2 - 4^4) + 6^6.$$
$$39744 := 3! \times (4! + 6! + 7!) + 7! = -3^3 \times 4^4 + 6^6 - 7^7 + 7^7.$$

$$40608 := (1! + 1!) \times (3! + 5! + 6!) \times 4! = -(1^1 + 1^1) \times (3^3 + 5^5) + 6^6 + 4^4.$$
$$41472 := 2! \times 3! \times 3! \times 4! \times 4! = (2^2 \times 3^3 - 3^3) \times (4^4 + 4^4).$$
$$46656 := 3! \times 3! \times (4! \times 4! + 6!) = 3^3 - 3^3 - 4^4 + 4^4 + 6^6.$$
$$47519 := -1! + (-1! + 2! \times 3!) \times 3! \times 6! = -1^1 + (1^1 + 2^2 + 3^3) \times 3^3 + 6^6.$$

$$47520 := 6! \times (2! \times 3! \times 3! - 3!) = 6^6 + (2^2 + 3^3) \times 3^3 + 3^3$$
$$:= (-1! + 2! \times 3!) \times 3! \times 6! = (1^1 + 2^2 + 3^3) \times 3^3 + 6^6.$$

$$47521 := 1! - (1! - 2! \times 3!) \times 3! \times 6! = 1^1 + (1^1 + 2^2 + 3^3) \times 3^3 + 6^6.$$
$$48960 := (2! \times (-2! + 4!) + 4!) \times 6! = (2^2 + 2^2) \times 4^4 + 4^4 + 6^6.$$
$$49680 := (-1! + (-1! + 3! \times 3!) \times 2!) \times 6! = (1^1 \times 1^1 + 3^3) \times 3^3 \times 2^2 + 6^6.$$
$$53568 := (3! + 3!) \times 3! \times (4! + 6!) = (3^3 + 3^3 - 3^3) \times 4^4 + 6^6.$$

$$60480 := ((4! - 3!) \times 3! - 4!) \times 6! = 4^4 \times 3^3 + 3^3 \times 4^4 + 6^6.$$
$$62640 := ((-1! - 1! + 4!) \times 4! - 3!) \times 5! = (1^1 \times 1^1 + 4^4) \times 4^4 - 3^3 - 5^5.$$
$$68662 := -1! + (1! + 4! \times 4!) \times (5! - 1!) = 1^1 + 1^1 + 4^4 \times 4^4 + 5^5 - 1^1.$$
$$68663 := (1! + 4! \times 4!) \times (-1! + 5!) = 1^1 + 4^4 \times 4^4 + 1^1 + 5^5.$$

$$68664 := 1! - (1! + 4! \times 4!) \times (1! - 5!) = 1^1 + 1^1 + 4^4 \times 4^4 + 1^1 + 5^5.$$
$$68688 := (3! - (1! - 5!) \times 4!) \times 4! = 3^3 \times 1^1 + 5^5 + 4^4 \times 4^4.$$
$$69169 := 1! \times 1! + 4! \times (4! \times 5! + 2!) = (1^1 + 1^1 + 4^4) \times 4^4 + 5^5 - 2^2.$$
$$71424 := (2! + 2!) \times 4! \times (4! + 6!) = 2^2 \times ((-2^2 + 4^4) \times 4^4 - 6^6).$$

$$86398 := -1! - 1! + 4! \times (3! \times 6! - 6!) = -1^1 - 1^1 - 4^4 \times 3^3 + 6^6 + 6^6.$$
$$86399 := -1! + 4! \times (3! \times 6! - 6!) = -1^1 - 4^4 \times 3^3 + 6^6 + 6^6.$$
$$86400 := 4! \times (3! \times 6! - 6!) = -4^4 \times 3^3 + 6^6 + 6^6.$$
$$86401 := 1! + 4! \times (3! \times 6! - 6!) = 1^1 - 4^4 \times 3^3 + 6^6 + 6^6.$$

$$86402 := 1! + 1! + 4! \times (3! \times 6! - 6!) = 1^1 + 1^1 - 4^4 \times 3^3 + 6^6 + 6^6.$$
$$86496 := -(1! + 1! - 3!) \times 4! + 5! \times 6! = (1^1 + 1^1) \times (-3^3 - 4^4 - 5^5 + 6^6).$$
$$86542 := (1! \times 1! + 6!) \times 5! + 4! - 2! = (1^1 + 1^1) \times (6^6 - 5^5 - 4^4 - 2^2).$$
$$86546 := (1! \times 1! + 6!) \times 5! + 4! + 2! = (1^1 + 1^1) \times (6^6 - 5^5 - 4^4) - 2^2.$$

$$87000 := (1! \times 1! - 2! + 3! + 6!) \times 5! = (1^1 + 1^1) \times (-2^2 - 3^3 + 6^6 - 5^5).$$
$$87006 := 1! + (1! + 5!) \times (6! - 1!) + 3! = (1^1 + 1^1) \times (-5^5 + 6^6 - 1^1 - 3^3).$$
$$87108 := (1! \times 1! \times 2! + 5!) \times (6! - 3!) = (1^1 + 1^1) \times (-2^2 - 5^5 + 6^6 + 3^3).$$
$$87112 := (1! \times 1! + 5!) \times 6! - 3! - 2! = (1^1 + 1^1) \times (-5^5 + 6^6 + 3^3) - 2^2.$$

$87114 := -1! \times 1! \times 3! + (1! + 5!) \times 6! = (1^1 + 1^1) \times (3^3 - 1^1 - 5^5 + 6^6).$
$87115 := 1! \times 1! + (1! + 5!) \times 6! - 3! = -1^1 + (1^1 + 1^1) \times (-5^5 + 6^6 + 3^3).$
$87116 := 1! + 1! - 3! + 5! \times 6! + 6! = (1^1 + 1^1) \times (3^3 - 5^5) + 6^6 + 6^6.$
$87117 := -1! - 1! - 1! + (3! + 6!) \times 5! = 1^1 + (1^1 + 1^1) \times (3^3 + 6^6 - 5^5).$

$87118 := -1! - 1! \times 1! + (3! + 6!) \times 5! = (1^1 + 1^1) \times (1^1 + 3^3 + 6^6 - 5^5).$
$87120 := 1! + 1! + (3! + 6!) \times 5! - 2! = (1^1 + 1^1) \times (3^3 + 6^6 - 5^5) + 2^2.$
$87124 := 1! + 1! + 2! + (3! + 6!) \times 5! = (1^1 + 1^1) \times (2^2 + 3^3 + 6^6 - 5^5).$
$87216 := (1! + (1! + 5!) \times 3!) \times 5! - 4! = -1^1 - (1^1 - 5^5) \times 3^3 + 5^5 - 4^4.$

$87264 := (1! \times 1! + 5!) \times 6! + 3! \times 4! = -(1^1 + 1^1) \times (5^5 - 6^6 + 3^3) + 4^4.$
$90599 := -1! + (-1! + (3! + 5!) \times 3!) \times 5! = 1^1 + (1^1 + 3^3) \times 5^5 - 3^3 + 5^5.$
$90672 := -(1! + 1!) \times 4! + 6! \times (3! + 5!) = (1^1 + 1^1) \times (4^4 + 6^6) - 3^3 - 5^5.$
$93626 := (1! - (1! - 3!) \times 6!) \times (2! + 4!) = (1^1 + 1^1) \times (3^3 + 6^6) + 2^2 + 4^4.$
$99360 := 1! \times 1! \times 6! \times (5! - 3! + 4!) = (1^1 + 1^1) \times (6^6 + 5^5 + 3^3) - 4^4.$

$101952 := (6! - 2! \times 3!) \times 3! \times 4! = 6^6 + 2^2 \times (3^3 + 3^3) \times 4^4.$
$105839 := -1! \times 1! + (5! + 6!) \times (5! + 3!) = (1^1 + 1^1) \times (5^5 + 6^6 + 5^5) + 3^3.$
$112320 := (2! \times 3! + 3! \times 4!) \times 6! = (-2^2 + 3^3) \times 3^3 \times 4^4 - 6^6.$
$120960 := 4! \times ((2! + 3!) \times 6! - 6!) = 4^4 \times 2^2 \times 3^3 + 6^6 + 6^6.$

$146880 := (3! \times (3! + 4!) + 4!) \times 6! = 3^3 \times (3^3 \times 4^4 + 4^4) - 6^6.$
$172800 := (3! \times 4! - 4!) \times 2! \times 6! = -3^3 \times (4^4 + 4^4) + 2^2 \times 6^6.$
$174000 := (2! \times (2! + 6!) + 3!) \times 5! = 2^2 \times (-2^2 + 6^6 - 3^3 - 5^5).$
$174118 := -1! + (1! + 5!) \times (-1! + 6! \times 2!) = -1^1 - 1^1 + (-5^5 - 1^1 + 6^6) \times 2^2.$

$174119 := (-1! + 2! \times 6!) \times (1! + 5!) = -1^1 + 2^2 \times (6^6 - 1^1 - 5^5).$
$174120 := 1! + (1! + 5!) \times (6! \times 2! - 1!) = (-1^1 \times 1^1 - 5^5 + 6^6) \times 2^2 \times 1^1.$
$174216 := 2! \times (2! + 5!) \times (-3! + 6!) = 2^2 \times (-2^2 - 5^5 + 3^3 + 6^6).$
$174227 := -1! + ((1! + 5!) \times 6! - 3!) \times 2! = -1^1 + (-1^1 - 5^5 + 6^6 + 3^3) \times 2^2.$

$174228 := ((1! + 5!) \times 6! - 3!) \times 2! = (-1^1 - 5^5 + 6^6 + 3^3) \times 2^2.$
$174229 := 1! + ((1! + 5!) \times 6! - 3!) \times 2! = 1^1 - (1^1 + 5^5 - 6^6 - 3^3) \times 2^2.$
$174230 := (1! + (1! + 5!) \times 6! - 3!) \times 2! = -1^1 - 1^1 + (-5^5 + 6^6 + 3^3) \times 2^2.$
$174234 := (1! + 1! + 2! \times 5!) \times 6! - 3! = 1^1 + 1^1 - 2^2 \times (5^5 - 6^6 - 3^3).$

$174236 := 2! \times (-2! + (3! + 6!) \times 5!) = 2^2 + 2^2 \times (3^3 + 6^6 - 5^5).$
$174237 := -1! + (-1! + (3! + 6!) \times 5!) \times 2! = 1^1 + (1^1 + 3^3 + 6^6 - 5^5) \times 2^2.$
$174240 := ((1! \times 1! \times 3! + 6!) \times 5!) \times 2! = (1^1 + 1^1 + 3^3 + 6^6 - 5^5) \times 2^2.$
$186624 := (4! + 3! \times 7!) \times 3! + 7! = 4^4 \times 3^3 \times (7^7 + 3^3 - 7^7).$

$$200448 := 2! \times (6! - 4!) \times 4! \times 3! \qquad = 2^2 \times 6^6 + (4^4 + 4^4) \times 3^3.$$
$$205632 := 2! \times 3! \times 4! \times (-3! + 6!) \qquad = (-2^2 + 3^3) \times 4^4 \times 3^3 + 6^6.$$
$$380160 := (-4! \times (3! + 2!) + 6!) \times 6! \qquad = 4^4 \times 3^3 + 2^2 \times (6^6 + 6^6).$$
$$764664 := (1! + (1! + 4!) \times 3!) \times (4! + 7!) = 1^1 - (1^1 + 4^4 - 3^3) \times 4^4 + 7^7.$$

$$1080000 := 2! \times 6! \times (3! + 4! + 6!) \qquad = -2^2 \times 6^6 + 3^3 \times (4^4 + 6^6).$$
$$2491776 := (3! + 3! \times 6!) \times 4! \times 4! \qquad = (3^3 + 3^3) \times (6^6 - 4^4 - 4^4).$$
$$2505600 := ((3! \times 4!) \times 6! + 6!) \times 4! \qquad = 3^3 \times (-4^4 + 6^6 + 6^6 - 4^4).$$
$$2566080 := ((-3! + 6!) \times 3! - 6!) \times 6! = 3^3 \times 6^6 + 3^3 \times 6^6 + 6^6.$$
$$3075840 := 6! \times (-4! - 4! + 3! \times 6!) \qquad = (6^6 + 4^4 \times 4^4) \times 3^3 + 6^6.$$

$$4665600 := ((2! + 3!) \times 6! + 6!) \times 6! = 2^2 \times (3^3 \times 6^6 - 6^6 - 6^6)$$
$$:= (2! + 1! + 3!) \times 6! \times 6! \qquad = 2^2 \times ((-1^1 + 3^3) \times 6^6 - 6^6).$$

$$23328000 := (-1! + (-1! + 4!) \times 2!) \times 6! \times 6! = (-1^1 - 1^1 + 4^4 - 2^2) \times (6^6 + 6^6).$$
$$298598400 := (-4! \times 3! + 6!) \times 6! \times 6! \qquad = 4^4 \times (3^3 \times 6^6 - 6^6 - 6^6).$$

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