

Factorial-Power Selfie Expressions – II

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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 other side are with same digits with same powers but with different permutations. These types of expressions, we call as **selfie expressions**. This we have done with two ways. One having only positive sign and second with positive and negative signs. In both the cases operation of multiplication and composite relation are used. In case of positive sign, the results are up to five terms expressions*

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1 Selfie Expressions

Selfie expressions are very much similar to **selfie numbers** [4]. Selfie numbers are represented by its own digits by use of some operations, while **selfie expressions** are the expressions where both sides have same digits, not necessarily same operations on both sides, i.e., **same digits equality expressions**. Below are different ways of expressing equalities with same digits on both sides:

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- **Multiplicative Equalities**

$$abcd... \times efgh... = cbad... \times gfhe.. \quad \forall a, b, c, d, e, \dots \in \mathbb{N}_+. \quad (1)$$

- **Power and Addition**

$$a^b + c^d + \dots = ab + cd + \dots, \quad \forall a, b, c, d, \dots \in \mathbb{N}. \quad (2)$$

- **Factorial and Power**

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

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

Let us explain one by one, the idea of above four **selfie expressions**, i.e., (1)-(4). This is done separately in each subsection.

1.1 Multiplicative Selfie Equalities

This subsection brings results based on the expression (1). By **multiplicative selfie equalities**, we understand that there are equalities, where each side is separated by operation of multiplications having same digits on both sides, not necessarily in same order. There are many ways of writing these kind of numbers explained in following subsections.

1.1.1 First Type

In this case, we have multiplicative equalities with equal number of digits on both sides and also in each multiplicative factor. The operation of multiplications is with number and its reverse forming a palindromic-type expression. For example, Based on idea of expressions are written in such a way that numbers formed by same digits multiplied by its reverse are equal to another group of multiplicative factors with same digits but of different numbers. See below some examples:

$$\diamond 37468 \times 86473 = 47386 \times 68374.$$

$$\diamond 37596 \times 69573 = 39756 \times 65793.$$

$$\diamond 39648 \times 84693 = 48396 \times 69384.$$

$$\diamond 45495 \times 59454 = 49545 \times 54594.$$

$$\diamond 46069 \times 96064 = 64096 \times 69046.$$

$$\diamond 120024 \times 420021 = 210042 \times 240012.$$

$$\diamond 102204 \times 402201 = 201402 \times 204102.$$

$$\diamond 130026 \times 620031 = 260013 \times 310062.$$

$$\diamond 120036 \times 630021 = 210063 \times 360012.$$

$$\diamond 102306 \times 603201 = 201603 \times 306102.$$

1.1.2 Second Type

The second case is similar to first one, having the same number of digits in each multiplicative factor but not forming a palindromic-type expression. For example,

$$\diamond 2017 \times 3404 = 1702 \times 4034$$

$$\diamond 2017 \times 6808 = 1702 \times 8068.$$

$$\diamond 1729 \times 3584 = 1792 \times 3458.$$

$$\diamond 1729 \times 3854 = 1927 \times 3458.$$

$$\diamond 1729 \times 4358 = 2179 \times 3458.$$

$$\diamond 1729 \times 4732 = 2197 \times 3724.$$

$$\diamond 1729 \times 5438 = 2719 \times 3458.$$

$$\diamond 1729 \times 5781 = 1927 \times 5187.$$

1.1.3 Third Type

The third case is similar to second one, but there is no rule with order of digits. Only thing is that on both sides of the equality sign, there are same digits. There are many numbers, but we have written only those with more than one equality sign. See below examples,

$$\begin{aligned} \diamond 162 \times 8064 &= 216 \times 6048 = 648 \times 2016. \\ \diamond 162 \times 8073 &= 207 \times 6318 = 702 \times 1863. \\ \diamond 17 \times 35945 &= 35 \times 17459 = 395 \times 1547. \\ \diamond 176 \times 7469 &= 194 \times 6776 = 776 \times 1694. \\ \diamond 18 \times 39879 &= 189 \times 3798 = 378 \times 1899. \\ \diamond 18 \times 41553 &= 54 \times 13851 = 513 \times 1458. \end{aligned}$$

$$\begin{aligned} \diamond 1782 \times 43956 &= 2178 \times 35964 = 3564 \times 21978 = 4356 \times 17982. \\ \diamond 18 \times 2830464 &= 486 \times 104832 = 1404 \times 36288 = 3024 \times 16848. \\ \diamond 18 \times 5204736 &= 162 \times 578304 = 3456 \times 27108 = 4518 \times 20736. \\ \diamond 198 \times 179982 &= 297 \times 119988 = 1188 \times 29997 = 1782 \times 19998. \\ \diamond 198 \times 339966 &= 396 \times 169983 = 1683 \times 39996 = 3366 \times 19998. \\ \diamond 2 \times 12089121 &= 11 \times 2198022 = 222 \times 108911 = 1221 \times 19802. \end{aligned}$$

Due to large quantity of numbers, we worked only with double or higher equality signs. Some times these expressions with single equality are famous as **vamp numbers**.

1.2 Power and Addition

Following the idea of expression (2) the author wrote the numbers **2017** [5] and **1729** [6] as:

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

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

Below are more examples,

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

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 [9, 10]. In these works, instead of using only positive sign, both positive and negative signs are used. For more study on numbers refer historical work [1, 2, 3].

1.3 Factorial and Power

Recently, author [11] worked on results arising due to (3). This we have done in two different ways. One without any repetition of digits. The second we have done with repetition of digits. In both the case the power in the right side of the equality is same as of the base. Both sides of the equality are with the operations as, positive, negative, multiplication, and composition relation. See below some examples in each case:

1.3.1 Different Digits

$$\begin{aligned}
 144 &:= (2! - 1!) \times 3! \times 4! &= -2^2 \times (1^1 + 3^3) + 4^4. \\
 147 &:= 1! + 2! + 3! \times 4! &= -1^1 - 2^2 \times 3^3 + 4^4. \\
 148 &:= (1! + 4!) \times 3! - 2! &= 1^1 \times 4^4 - 3^3 \times 2^2. \\
 152 &:= 2! + 3! \times (1! + 4!) &= 2^2 \times (-3^3 + 1^1) + 4^4. \\
 286 &:= (-1! + 3! \times 4!) \times 2! &= -1^1 + 3^3 + 4^4 + 2^2. \\
 287 &:= -1! + 2! \times 3! \times 4! &= 1^1 \times 2^2 + 3^3 + 4^4. \\
 288 &:= 1! \times 2! \times 3! \times 4! &= 1^1 + 2^2 + 3^3 + 4^4.
 \end{aligned}$$

1.3.2 Repetition of Digits

$$\begin{aligned}
 108 &:= 2! \times (3! + 4! + 4!) &= 2^2 \times 3^3 + 4^4 - 4^4 \\
 &:= 3! \times (3! + 3! \times 2!) &= (3^3 + 3^3 - 3^3) \times 2^2 \\
 &:= -5! + 2! \times (5! - 3!) &= (5^5 + 2^2 - 5^5) \times 3^3 \\
 &:= (-3! + 5!) \times 2! - 5! &= 3^3 \times (5^5 + 2^2 - 5^5) \\
 &:= (2! \times 3! + 3!) \times 3! \times 1! &= (2^2 + 3^3 - 3^3) \times 3^3 \times 1^1 \\
 &:= (1! \times 1! + 2!) \times 3! \times 3! &= (-1^1 - 1^1 + 2^2) \times (3^3 + 3^3) \\
 &:= (1! \times 3! + 3! + 3!) \times 3! &= 1^1 \times 3^3 + 3^3 + 3^3 + 3^3 \\
 &:= (4! + 3! \times 1! + 4!) \times 2! &= (4^4 + 3^3 \times 1^1 - 4^4) \times 2^2 \\
 &:= (-3! + 5! \times 1!) \times 2! - 5! &= (5^5 \times 1^1 + 3^3 - 5^5) \times 2^2. \\
 \\
 1008 &:= ((4! - 2!) \times 4! - 4!) \times 2! &= (4^4 - 2^2 - 4^4 + 4^4) \times 2^2 \\
 &:= (2! + 2! + 4!) \times 3! \times 3! &= 2^2 \times (-2^2 + 4^4) - 3^3 + 3^3 \\
 &:= (2! - 1! + 3!) \times 3! \times 4! &= -2^2 + (1^1 + 3^3) \times 3^3 + 4^4 \\
 &:= 2! \times (2! \times (5! + 5!) + 4!) &= 2^2 \times (-2^2 - 5^5 + 5^5 + 4^4).
 \end{aligned}$$

We observe that the (4) is different from the (3) in right side of the expression. In case (3), the power of digits is same as of bases. This is what we have given examples above. In case of (4), it is not necessary that the power is

same as of digits, but is a permutation of same digits as of bases. See below more general way.

$$(a!, b!, c!, \dots) = (a^a, b^b, c^c, \dots)$$

$$(a!, b!, c!, \dots) = (a, b, c, \dots)^{(a,b,c,\dots)}.$$

The first expression is simplified form of (3) and the second expression is similar to (4). The aim of this work is bring numbers based on (4).

2 Factorial-Power Selfie Expressions: Permutable Power

In this paper, our aim is to work with examples based on the expression given in (4), where the expressions are separated by equality sign with **factorial** and **powers** on each side. The powers are the same as of bases but with different permutations. Moreover, the digits follow the same order on both sides, with no rule on operations. The operation used are multiplication, addition, subtraction, and composition. Due to high quantity of numbers, the results are limited up to five terms for positive sign, and up to four terms for positive and negative signs. Results for five terms expressions with positive and negative signs are given in next work [12].

2.1 Positive Sign: Up to Four Terms Expressions

2.1.1 Up to Four Terms Expressions

Below are examples of numbers following the expression (4) with positive sign up to four terms.

$$1 := 1! = 1^1.$$

$$2 := 1! \times 2! = 1^2 \times 2^1.$$

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

$$8 := 1! \times 2! + 3! = 1^3 + 2^2 + 3^1.$$

$$12 := 1! \times 2! \times 3! = 1^2 + 2^3 + 3^1.$$

$$= 1^3 \times 2^2 \times 3^1.$$

$$= 1^3 + 2^1 + 3^2.$$

$$13 := 1! + 2! \times 3! = 1^3 + 2^2 \times 3^1.$$

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

$$= 1^3 \times 2^1 \times 3^2.$$

$$31 := 1! + 3! + 4! = 1^4 \times 3^3 + 4^1.$$

$$48 := 1! \times 2! \times 4! = (1^4 + 2^1) \times 4^2.$$

$$145 := 4! \times 3! + 1! = 4^3 + 3^4 \times 1^1.$$

$$36 := 1! \times 2! \times 3! + 4! = 1^3 + 2^4 + 3^1 + 4^2.$$

$$= 1^4 + 2^2 + 3^3 + 4^1.$$

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

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

$$60 := (1! \times 2!) \times (3! + 4!) = 1^1 + 2^4 + 3^3 + 4^2.$$

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

$$61 = 1! + (4! + 3!) \times 2! = (1^3 + 4^1) \times 3^2 + 2^4.$$

$$90 := (1! + 2!) \times (3! + 4!) = 1^1 + 2^4 + 3^2 + 4^3.$$

$$= 1^3 + 2^2 + 3^4 + 4^1.$$

$$128 := (1! \times 2!) + 3! + 5! = 1^5 \times 2^2 \times (3^3 + 5^1).$$

$$129 := (1! + 2!) + 3! + 5! = 1^5 + 2^2 \times (3^3 + 5^1).$$

$$132 := (1! \times 2!) \times 3! + 5! = 1^5 \times 2^2 + 3^1 + 5^3.$$

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

$$133 := 1! + 2! \times 3! + 5! = 1^5 + 2^2 + 3^1 + 5^3.$$

$$138 := (1! + 2!) \times 3! + 5! = 1^5 + 2^2 \times 3^1 + 5^3.$$

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

$$\begin{aligned}
 147 &:= (1! + 2!) + (3! \times 4!) = 1^2 \times 2^1 + 3^4 + 4^3. \\
 &= 1^4 + 2^1 \times (3^2 + 4^3). \\
 &:= (1! + 2!) + (4! \times 3!) = 1^2 \times 2^1 + 4^3 + 3^4. \\
 &= (1^4 + 2^3) \times 4^2 + 3^1.
 \end{aligned}$$

$$150 := 1! \times 3! + 4! + 5! = 1^5 \times 3^4 + 4^3 + 5^1.$$

$$151 := 1! + 3! + 4! + 5! = 1^5 + 3^4 + 4^3 + 5^1.$$

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

$$168 := 1! \times 5! + 2! \times 4! = (1^5 + 5^2 + 2^4) \times 4^1.$$

$$\begin{aligned}
 192 &:= (1! \times 2! + 3!) \times 4! = (1^4 + 2^3 + 3^1) \times 4^2. \\
 &:= 5! + (1! + 2!) \times 4! = (5^1 + 1^5) \times (2^4 + 4^2).
 \end{aligned}$$

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

$$246 := 1! \times 5! \times 2! + 3! = (1^3 + 5^1) \times (2^5 + 3^2).$$

$$\begin{aligned}
 252 &:= (1! \times 2!) \times (3! + 5!) = 1^3 \times 2^2 + 3^5 + 5^1. \\
 &= (1^5 + 2^3) \times (3^1 + 5^2).
 \end{aligned}$$

$$265 := 1! + 2! \times 5! + 4! = 1^5 \times 2^2 + 5^1 + 4^4.$$

$$266 := (1! + 5!) \times 2! + 4! = 1^5 + 5^1 + 2^2 + 4^4.$$

$$\begin{aligned}
 288 &:= 1! \times 2! \times 3! \times 4! = 1^1 + 2^2 + 3^3 + 4^4. \\
 &= 1^4 \times 2^3 \times 3^2 \times 4^1.
 \end{aligned}$$

$$289 := 1! + 2! \times 3! \times 4! = 1^4 + 2^3 \times 3^2 \times 4^1.$$

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

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

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

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

$$732 := (2! + 5!) \times 1! \times 3! = 2^5 + 5^2 \times (1^1 + 3^3).$$

$$738 := (2! + 1! + 5!) \times 3! = 2^1 \times (1^2 + 5^3 + 3^5).$$

$$744 := 1! \times 3! \times 5! + 4! = 1^4 + 3^5 + 5^3 \times 4^1.$$

$$854 := (3! + 1!) \times (2! + 5!) = 3^5 \times (1^2 + 2^1) + 5^3.$$

$$870 := (1! + 4!) \times 3! + 6! = (1^6 \times 4^3 + 3^4) \times 6^1.$$

$$1440 := 1! \times 2! \times 3! \times 5! = 1^3 \times 2^5 \times 3^2 \times 5^1.$$

$$1441 := 1! + 2! \times 3! \times 5! = 1^3 + 2^5 \times 3^2 \times 5^1.$$

$$1728 := 2! \times 3! \times (5! + 4!) = 2^2 \times (3^5 + 5^3) + 4^4.$$

$$2520 := (1! + 2!) \times (5! + 6!) = (1^5 + 2^6 + 5^1) \times 6^2.$$

$$3146 := (1! + 5!) \times (2! + 4!) = 1^2 + 5^5 + 2^4 + 4^1.$$

$$3168 := (2! \times 3! + 5!) \times 4! = 2^4 \times (3^2 + 5^3) + 4^5.$$

$$5904 := (2! \times 5! + 3!) \times 4! = 2^4 \times (5^3 + 3^5) + 4^2.$$

$$207360 := 2! \times 3! \times 4! \times 6! = 2^2 \times (3^4 \times 4^3 + 6^6).$$

2.1.2 Five Terms Expressions

Below are five terms positive sign examples according to the expression (4).

$$\begin{aligned}
 153 &:= 4! + 1! + 3! + 2! + 5! = 4^1 \times (1^5 + 3^3) + 2^4 + 5^2. \\
 &= 4^3 \times 1^5 + 3^2 + 2^4 \times 5^1. \\
 &= 4^3 + (1^5 + 3^1) \times 2^4 + 5^2.
 \end{aligned}$$

$$156 := 1! \times 2! \times 3! + 5! + 4! = 1^5 + 2^4 + 3^1 \times 5^2 + 4^3.$$

$$\begin{aligned}
 158 &:= 4! + 5! + (1! + 3!) \times 2! = 4^3 + (5^2 + 1^5) \times 3^1 + 2^4. \\
 &:= 4! + 5! + 2! \times (1! + 3!) = 4^3 + 5^1 \times (2^4 + 1^5) + 3^2.
 \end{aligned}$$

$$\begin{aligned}
 174 &:= 2! \times 4! \times 1! + 5! + 3! = 2^3 + (4^2 + 1^5) \times 5^1 + 3^4. \\
 &= 2^5 + 4^3 + (1^4 + 5^2) \times 3^1.
 \end{aligned}$$

$$\begin{aligned}
176 &:= 3! + (1! + 4!) \times 2! + 5! = 3^3 \times (1^5 + 4^1) + 2^4 + 5^2. \\
&:= 3! + (4! + 1!) \times 2! + 5! = (3^1 + 4^2) \times 1^4 + 2^5 + 5^3. \\
&= 3^3 \times (4^1 + 1^5) + 2^4 + 5^2.
\end{aligned}$$

$$180 := (1! \times 3! + 4!) \times 2! + 5! = 1^4 \times 3^3 + 4^1 \times 2^5 + 5^2.$$

$$\begin{aligned}
181 &:= 1! + (3! + 4!) \times 2! + 5! = (1^5 + 3^2) \times 4^1 + 2^4 + 5^3. \\
&= 1^4 + 3^3 + 4^1 \times 2^5 + 5^2.
\end{aligned}$$

$$182 := (1! + 3! + 4!) \times 2! + 5! = 1^2 \times 3^4 + 4^3 + 2^5 + 5^1.$$

$$\begin{aligned}
198 &:= 3! + (2! + 1!) \times 4! + 5! = 3^2 + 2^4 \times 1^5 \times 4^1 + 5^3. \\
&= 3^4 + 2^5 + (1^3 + 4^2) \times 5^1.
\end{aligned}$$

$$\begin{aligned}
266 &:= 3! \times 1! \times 4! + 2! + 5! = 3^4 + (1^3 + 4^1) \times 2^5 + 5^2. \\
&:= 3! \times 4! \times 1! + 2! + 5! = 3^2 + 4^1 \times (1^4 + 2^5) + 5^3. \\
&:= 3! \times 4! + 2! \times 1! + 5! = 3^1 \times (4^3 + 2^4) + 1^5 + 5^2.
\end{aligned}$$

$$\begin{aligned}
270 &:= 3! \times 1! + 2! \times 5! + 4! = 3^4 + (1^5 + 2^3) \times (5^1 + 4^2). \\
&:= 3! + 2! \times 5! \times 1! + 4! = (3^2 + 2^5) \times 5^1 + 1^4 + 4^3.
\end{aligned}$$

$$\begin{aligned}
272 &:= (1! + 4!) \times 3! + 2! + 5! = (1^5 \times 4^1) \times (3^3 + 2^4 + 5^2). \\
&= 1^4 \times 4^2 + 3^5 + 2^3 + 5^1. \\
&:= 2! + (1! + 4!) \times 3! + 5! = (2^5 + 1^4 + 4^2) \times 3^1 + 5^3.
\end{aligned}$$

$$\begin{aligned}
276 &:= 2! \times 1! \times (3! + 5!) + 4! = 2^1 \times 1^5 \times (3^4 + 5^2) + 4^3. \\
&:= 2! \times 1! \times (5! + 3!) + 4! = (2^4 + 1^5 + 5^2 + 3^3) \times 4^1. \\
&:= 2! \times 1! \times (5! + 3!) + 4! = 2^1 \times 1^5 \times (5^2 + 3^4) + 4^3.
\end{aligned}$$

$$277 := 1! + 2! \times (3! + 5!) + 4! = 1^5 + 2^1 \times (3^4 + 5^2) + 4^3.$$

$$\begin{aligned}
278 &:= (1! + 3! + 5!) \times 2! + 4! = (1^5 + 3^4 + 5^2) \times 2^1 + 4^3. \\
&= 1^5 \times 3^2 + 5^1 + 2^3 + 4^4. \\
&:= (1! + 5! + 3!) \times 2! + 4! = (1^5 + 5^2 + 3^4) \times 2^1 + 4^3.
\end{aligned}$$

$$282 := 3! \times (2! + 1! + 4!) + 5! = 3^2 \times (2^4 + 1^5) + 4^1 + 5^3.$$

$$290 := (1! + 3!) \times 4! + 5! + 2! = 1^5 + 3^4 + 4^2 \times (5^1 + 2^3).$$

$$294 := 2! \times (4! \times 1! + 5!) + 3! = 2^5 \times (4^1 + 1^4) + 5^3 + 3^2.$$

$$295 := 1! + 3! + 2! \times (4! + 5!) = (1^5 \times 3^3 + 2^4 + 4^2) \times 5^1.$$

$$296 := (1! + 5! + 4!) \times 2! + 3! = 1^5 + 5^1 \times (4^2 + 2^4 + 3^3).$$

$$\begin{aligned} 300 &:= 1! \times 2! \times (3! + 4! + 5!) = (1^5 + 2^4 + 3^3 + 4^2) \times 5^1. \\ &= 1^4 + 2^5 + 3^1 \times (4^3 + 5^2). \end{aligned}$$

$$\begin{aligned} 302 &:= (3! + 1! + 4! + 5!) \times 2! = 3^1 \times (1^4 + 4^3 + 5^2) + 2^5. \\ &= 3^2 \times 1^3 + 4^4 + 5^1 + 2^5. \\ &= 3^4 + (1^5 + 4^2) \times (5^1 + 2^3). \end{aligned}$$

$$312 := 1! \times 4! \times (2! + 3!) + 5! = 1^4 + 4^2 + (2^5 + 3^3) \times 5^1.$$

$$\begin{aligned} 313 &:= 1! + (3! + 2!) \times 4! + 5! = (1^5 + 3^1) \times 2^3 + 4^4 + 5^2. \\ &= 1^4 \times 3^1 \times (2^5 + 4^3) + 5^2. \\ &= 1^5 \times 3^4 + 2^3 \times (4^1 + 5^2). \end{aligned}$$

$$\begin{aligned} 320 &:= (1! + 4!) \times (2! + 3!) + 5! = 1^2 \times 4^4 + 2^5 + 3^3 + 5^1. \\ &:= (1! + 4!) \times (3! + 2!) + 5! = (1^4 + 4^1) \times (3^3 + 2^5) + 5^2. \\ &= 1^5 + (4^2 + 3^4) \times 2^1 + 5^3. \end{aligned}$$

$$\begin{aligned} 336 &:= (3! + 2! + 1!) \times 4! + 5! = 3^3 \times 2^1 + 1^5 + 4^4 + 5^2. \\ &= 3^5 + (2^4 + 1^3) \times 4^1 + 5^2. \\ &= 3^5 + 2^3 + (1^4 + 4^2) \times 5^1. \end{aligned}$$

$$\begin{aligned} 384 &:= 3! \times 1! \times 4! + 2! \times 5! = 3^1 \times 1^5 + 4^2 \times 2^4 + 5^3. \\ &= 3^3 + (1^5 + 4^2) \times (2^4 + 5^1). \\ &= 3^5 \times 1^4 + 4^1 \times 2^2 + 5^3. \\ &= 3^5 + (1^4 + 4^2) \times 2^3 + 5^1. \end{aligned}$$

$$\begin{aligned} 385 &:= 1! + 3! \times 4! + 2! \times 5! = (1^3 + 3^4) \times 4^1 + 2^5 + 5^2. \\ &= 1^4 + 3^5 + 4^1 \times 2^2 + 5^3. \\ &= 1^5 + 3^1 + 4^2 \times 2^4 + 5^3. \end{aligned}$$

$$\begin{aligned} 386 &:= 2! \times (5! + 1!) + 3! \times 4! = (2^1 + 5^3) \times 1^4 + 3^5 + 4^2. \\ &= (2^3 + 5^1) \times (1^5 + 3^2) + 4^4. \\ &= 2^4 + 5^1 \times (1^5 + 3^2 + 4^3). \end{aligned}$$

$$402 := (3! + 5!) \times (2! + 1!) + 4! = 3^5 + 5^3 + 2^1 \times (1^4 + 4^2).$$

$$\begin{aligned} 408 &:= 4! \times 2! \times 1! \times 3! + 5! = 4^2 + 2^4 + 1^5 + 3^1 \times 5^3. \\ &= 4^3 + 2^2 \times 1^5 \times (3^4 + 5^1). \\ &= 4^4 + (2^1 + 1^5) \times 3^2 + 5^3. \end{aligned}$$

$$\begin{aligned}
409 &:= 1! + 3! \times 2! \times 4! + 5! = (1^3 + 3^1) \times 2^5 + 4^4 + 5^2. \\
&= (1^4 + 3^1) \times (2^5 + 4^3) + 5^2. \\
&= 1^5 \times 3^2 + (2^4 + 4^3) \times 5^1.
\end{aligned}$$

$$\begin{aligned}
410 &:= (1! + 3! \times 4!) \times 2! + 5! = 1^5 + 3^2 + (4^3 + 2^4) \times 5^1. \\
&:= 2! \times (3! \times 4! + 1!) + 5! = 2^2 + 3^4 + (4^3 + 1^5) \times 5^1. \\
&:= 2! \times (4! \times 3! + 1!) + 5! = 2^4 + 4^2 + 3^1 \times (1^5 + 5^3).
\end{aligned}$$

$$\begin{aligned}
414 &:= 3! \times (2! \times 4! + 1!) + 5! = 3^2 + (2^4 + 4^3 + 1^5) \times 5^1. \\
420 &:= (1! + 4!) \times 2! \times 3! + 5! = (1^4 + 4^1) \times (2^5 + 3^3 + 5^2).
\end{aligned}$$

$$\begin{aligned}
432 &:= (3! \times 2! + 1!) \times 4! + 5! = 3^5 + (2^3 + 1^4) \times (4^2 + 5^1). \\
&= 3^5 + 2^4 \times 1^2 \times 4^1 + 5^3.
\end{aligned}$$

$$438 := 3! + (2! + 1!) \times (4! + 5!) = 3^4 + 2^5 + (1^2 + 4^3) \times 5^1.$$

$$\begin{aligned}
450 &:= (1! + 2!) \times (4! + 3! + 5!) = (1^5 + 2^4 + 4^3 + 3^2) \times 5^1. \\
&= 1^4 + (2^5 + 4^1) \times 3^2 + 5^3.
\end{aligned}$$

$$\begin{aligned}
456 &:= 4! \times (3! + 1!) \times 2! + 5! = 4^1 \times (3^4 \times 1^5 + 2^3 + 5^2). \\
&= 4^1 + 3^3 + (1^5 + 2^4) \times 5^2.
\end{aligned}$$

$$\begin{aligned}
504 &:= 3! \times 4! + 5! \times (1! + 2!) = 3^4 + (4^2 + 5^3) \times (1^5 + 2^1). \\
&= 3^5 + (4^1 + 5^2) \times (1^4 + 2^3). \\
&:= 5! \times (1! + 2!) + 4! \times 3! = 5^1 \times 1^3 + 2^4 \times 4^2 + 3^5. \\
&= 5^1 \times 1^4 + 2^2 \times 4^3 + 3^5.
\end{aligned}$$

$$\begin{aligned}
528 &:= (4! \times 3! \times 1! + 5!) \times 2! = 4^1 \times (3^4 + 1^5) + 5^2 \times 2^3. \\
&= 4^2 \times 3^3 + (1^5 + 5^1) \times 2^4. \\
&= 4^3 + (3^1 + 1^5 + 5^2) \times 2^4.
\end{aligned}$$

$$529 := 1! + (5! + 3! \times 4!) \times 2! = 1^5 + (5^1 + 3^3) \times 4^2 + 2^4.$$

$$\begin{aligned}
530 &:= 2! \times (1! + 3! \times 4! + 5!) = (2^3 + 1^5 + 3^4 + 4^2) \times 5^1. \\
&= (2^5 + 1^4 + 3^2 + 4^3) \times 5^1.
\end{aligned}$$

$$540 := ((1! + 4!) \times 3! + 5!) \times 2! = 1^2 + 4^4 + 3^5 + 5^1 \times 2^3.$$

$$\begin{aligned} 552 &:= (1! + 2!) \times 4! \times 3! + 5! = (1^5 + 2^4) \times (4^1 + 3^3) + 5^2. \\ &= 1^5 \times 2^4 + 4^1 \times (3^2 + 5^3). \end{aligned}$$

$$576 := 2! \times (4! \times (1! + 3!) + 5!) = 2^5 \times (4^2 + 1^4) + 3^3 + 5^1.$$

$$746 := 1! \times 5! \times 3! + 2! + 4! = 1^5 + 5^1 \times (3^4 + 2^2 + 4^3).$$

$$747 := 1! + 2! + 3! \times 5! + 4! = 1^4 \times 2^2 + 3^5 + 5^3 \times 4^1.$$

$$752 := 1! \times 3! + 2! + 4! + 6! = (1^6 + 3^4) \times 2^3 + 4^2 \times 6^1.$$

$$756 := 3! \times 1! \times (2! + 5!) + 4! = (3^4 + 1^5) \times 2^3 + 5^2 \times 4^1.$$

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

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

$$757 := 1! + (2! + 5!) \times 3! + 4! = 1^2 \times 2^5 + 5^1 \times (3^4 + 4^3).$$

$$762 := 4! + (1! + 2! + 5!) \times 3! = 4^1 \times 1^3 \times 2^5 + 5^4 + 3^2.$$

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

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

$$768 := 1! \times 4! \times 2! + 3! \times 5! = 1^3 + 4^4 + 2^1 \times 3^5 + 5^2.$$

$$= 1^5 \times 4^2 \times (2^4 + 3^3 + 5^1).$$

$$= 1^5 \times 4^4 + 2^2 \times (3^1 + 5^3).$$

$$769 := 1! + 2! \times 4! + 3! \times 5! = (1^3 \times 2^5 + 4^2) \times 3^1 + 5^4.$$

$$= 1^4 + 2^1 \times (4^2 + 3^5 + 5^3).$$

$$= 1^5 + 2^4 \times (4^2 + 3^3 + 5^1).$$

$$770 := 5! \times 3! + (4! + 1!) \times 2! = (5^3 + 3^5 + 4^2 + 1^4) \times 2^1.$$

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

$$774 := (1! \times 2!) \times 4! + 6! + 3! = (1^6 \times 2^4 + 4^3 + 6^1) \times 3^2.$$

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

$$= 1^5 + 5^3 + 3^4 \times (2^2 + 4^1).$$

$$775 := 1! + 2! \times 4! + 6! + 3! = 1^6 + (2^4 + 4^3 + 6^1) \times 3^2.$$

$$782 := (1! + 3! + 4!) \times 2! + 6! = (1^6 \times 3^4 + 4^2) \times 2^3 + 6^1.$$

$$792 := (1! + 2!) \times (5! + 3! \times 4!) = 1^3 \times 2^1 \times (5^2 + 3^5) + 4^4.$$

$$= 1^5 + 2^4 + 5^2 \times (3^3 + 4^1).$$

$$798 := (1! + 2!) \times 4! + 3! + 6! = 1^4 + 2^3 \times 4^1 + 3^6 + 6^2.$$

$$858 := (1! + 2!) \times 3! + 6! + 5! = 1^6 + 2^5 + (3^3 + 6^1) \times 5^2.$$

$$866 := 1! \times 3! \times 4! + 2! + 6! = 1^4 + 3^6 + 4^3 + 2^1 \times 6^2.$$

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

$$867 := 1! + 2! + (5! + 4!) \times 3! = (1^5 \times 2^3 + 5^2 + 4^4) \times 3^1.$$

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

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

$$872 := (1! + 4! + 5!) \times 3! + 2! = (1^4 + 4^1) \times 5^3 + 3^5 + 2^2.$$

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

$$876 := (1! \times 2! + 4! + 5!) \times 3! = 1^3 \times 2^2 + 4^1 + 5^4 + 3^5.$$

$$= 1^3 + 2^5 + (4^4 + 5^2) \times 3^1.$$

$$877 := 1! + (2! + 4! + 5!) \times 3! = 1^3 + 2^2 + 4^1 + 5^4 + 3^5.$$

$$878 := 4! + (3! + 1!) \times (2! + 5!) = (4^2 + 3^4) \times (1^5 + 2^3) + 5^1.$$

$$882 := (1! + 4! + 2! + 5!) \times 3! = (1^2 + 4^4) \times 2^1 + 5^3 + 3^5.$$

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

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

$$888 := 2! \times 4! + (1! + 3!) \times 5! = 2^2 \times (4^1 + 1^3) + 3^5 + 5^4.$$

$$= 2^2 \times (4^3 + 1^5) + 3^1 + 5^4.$$

$$= 2^3 \times (4^1 + 1^5 + 3^4 + 5^2).$$

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

$$890 := (1! + 3!) \times 4! + 6! + 2! = 1^2 + 3^6 + 4^3 + 6^1 \times 2^4.$$

$$= 1^3 + 3^6 + 4^1 \times 6^2 + 2^4.$$

$$= 1^6 + 3^2 + 4^1 \times 6^3 + 2^4.$$

$$902 := (1! + 3!) \times (2! + 4!) + 6! = (1^3 + 3^2) \times 2^6 + 4^4 + 6^1.$$

$$= (1^6 + 3^3) \times (2^4 + 4^2) + 6^1.$$

$$913 := 1! + 6! + 4! \times (2! + 3!) = (1^4 + 6^1 + 4^2) \times 2^3 + 3^6.$$

$$920 := (1! + 4!) \times (2! + 3!) + 6! = (1^6 + 4^2) \times 2^4 + 3^1 \times 6^3.$$

$$936 := (2! + 3! + 1!) \times 4! + 6! = 2^4 \times 3^2 \times (1^6 + 4^1) + 6^3.$$

$$\begin{aligned} 966 &:= 1! \times 2! \times 5! + 3! + 6! = 1^5 + 2^2 \times 5^1 + 3^6 + 6^3. \\ &:= 1! \times 2! \times 5! + 6! + 3! = (1^6 + 2^1) \times (5^2 + 6^3) + 3^5. \end{aligned}$$

$$972 := 1! \times 2! \times (3! + 5!) + 6! = 1^5 \times 2^1 + 3^6 + 5^2 + 6^3.$$

$$973 := 1! + 2! \times (3! + 5!) + 6! = 1^5 + 2^1 + 3^6 + 5^2 + 6^3.$$

$$984 := (3! \times 1! + 2!) \times 5! + 4! = 3^3 + (1^4 + 2^5) \times (5^2 + 4^1).$$

$$\begin{aligned} 985 &:= 1! + 4! + (3! + 2!) \times 5! = (1^5 + 4^1) \times 3^2 \times 2^3 + 5^4. \\ &= 1^5 \times 4^4 + 3^3 \times (2^1 + 5^2). \end{aligned}$$

$$\begin{aligned} 992 &:= (2! + 3!) \times (1! + 5!) + 4! = 2^1 \times (3^5 \times 1^2 + 5^3) + 4^4. \\ &= 2^5 \times (3^1 + 1^4 + 5^2) + 4^3. \\ &= 2^5 + (3^2 + 1^4 + 5^1) \times 4^3. \end{aligned}$$

$$\begin{aligned} 1008 &:= 1! \times 3! \times 2! \times 4! + 6! = 1^6 \times 3^2 \times 2^4 + 4^1 \times 6^3. \\ &= 1^6 \times 3^4 \times (2^3 + 4^1) + 6^2. \\ &:= 3! \times (2! \times 4! \times 1! + 5!) = (3^3 + 2^5) \times (4^2 + 1^4) + 5^1. \end{aligned}$$

$$\begin{aligned} 1009 &:= 1! + 3! \times (2! \times 4! + 5!) = (1^1 + 3^2) \times 2^5 + 4^3 + 5^4. \\ &= (1^2 + 3^1) \times (2^5 + 4^3) + 5^4. \\ &= (1^5 + 3^4) \times (2^3 + 4^1) + 5^2. \\ &= 1^3 \times 3^4 + 2^5 \times (4^1 + 5^2). \\ &= 1^5 \times 3^1 \times 2^3 \times 4^2 + 5^4. \\ &:= 1! + 3! \times 2! \times 4! + 6! = 1^2 \times 3^4 + 2^6 + 4^1 \times 6^3. \\ &= 1^2 \times 3^6 + 2^4 \times 4^1 + 6^3. \\ &= 1^4 \times 3^6 + 2^2 \times (4^3 + 6^1). \\ &= 1^6 + 3^2 \times 2^4 + 4^1 \times 6^3. \\ &= 1^6 + 3^4 \times (2^3 + 4^1) + 6^2. \end{aligned}$$

$$\begin{aligned} 1010 &:= (1! + 3!) \times (4! + 5!) + 2! = (1^4 + 3^2) \times (4^3 + 5^1 + 2^5). \\ &= 1^3 + 3^4 + (4^1 + 5^2) \times 2^5. \\ &:= (1! + 3! \times 4!) \times 2! + 6! = 1^2 + 3^6 + 4^1 \times 2^4 + 6^3. \\ &= 1^3 + 3^6 + 4^4 + 2^2 \times 6^1. \end{aligned}$$

$$1020 := 2! \times (4! + 1!) \times 3! + 6! = (2^3 + 4^1) \times (1^6 + 3^4) + 6^2.$$

$$\begin{aligned} 1032 &:= (2! \times 3! + 1!) \times 4! + 6! = 2^4 \times 3^1 \times (1^6 + 4^2) + 6^3. \\ &:= (2! + 3!) \times 4! + 5! + 6! = 2^6 + 3^5 + 4^3 + 5^4 + 6^2. \end{aligned}$$

$$1056 := (1! + 3!) \times 4! \times 2! + 6! = 1^6 \times 3^1 \times 4^4 + 2^3 \times 6^2.$$

$$1086 := 3! + 5! \times (1! + 2!) + 6! = 3^3 \times (5^2 + 1^5) + 2^6 \times 6^1.$$

$$\begin{aligned} 1104 &:= (1! + 2! + 3!) \times 5! + 4! = (1^4 \times 2^3 + 3^5 + 5^2) \times 4^1. \\ &= (1^5 + 2^4 + 3^3) \times 5^2 + 4^1. \\ &= 1^4 + 2^1 \times 3^3 + 5^2 + 4^5. \end{aligned}$$

$$\begin{aligned} 1152 &:= (4! + 5!) \times (3! \times 1! + 2!) = (4^2 + 5^3 + 3^5) \times (1^4 + 2^1). \\ &= (4^4 + 5^1 + 3^3) \times 1^5 \times 2^2. \\ &= 4^4 + (5^2 + 3^1) \times 1^3 \times 2^5. \\ &= 4^4 + 5^1 + 3^3 \times (1^2 + 2^5). \\ &= 4^5 + (5^1 + 3^3) \times 1^4 \times 2^2. \end{aligned}$$

$$\begin{aligned} 1152 &:= 3! \times (5! + (1! + 2!) \times 4!) = (3^1 + 5^2) \times 1^3 \times 2^5 + 4^4. \\ &= (3^1 + 5^3) \times 1^5 + 2^2 \times 4^4. \\ &= (3^3 + 5^1) \times 1^4 \times 2^2 + 4^5. \end{aligned}$$

$$\begin{aligned} 1153 &:= 1! + (2! + 3!) \times (5! + 4!) = 1^3 + 2^5 \times (3^1 + 5^2) + 4^4. \\ &= 1^4 + 2^2 \times (3^3 + 5^1) + 4^5. \\ &= 1^5 + 2^2 \times (3^3 + 5^1 + 4^4). \end{aligned}$$

$$1160 := (1! + 4! + 5!) \times (2! + 3!) = 1^4 \times 4^5 + 5^3 + 2^1 + 3^2.$$

$$\begin{aligned} 1176 &:= (1! + 3!) \times (2! \times 4! + 5!) = 1^2 + 3^5 \times 2^1 + 4^3 + 5^4. \\ &= 1^5 + (3^3 + 2^4 + 4^1) \times 5^2. \\ &:= (1! + 3!) \times (4! \times 2! + 5!) = (1^4 + 3^5) \times 4^1 + 2^3 \times 5^2. \end{aligned}$$

$$\begin{aligned} 1296 &:= (2! + 1! + 3!) \times (5! + 4!) = 2^2 \times (1^4 + 3^5) + 5^1 \times 4^3. \\ &= 2^3 \times (1^5 + 3^4 + 5^1 \times 4^2). \\ &= 2^4 + 1^2 + 3^5 \times 5^1 + 4^3. \end{aligned}$$

$$1442 := 1! \times 3! \times 5! + 2! + 6! = (1^6 + 3^2) \times 5^3 + 2^5 \times 6^1.$$

$$1443 := 1! + 3! \times 5! + 2! + 6! = 1^6 \times 3^5 + 5^2 \times 2^3 \times 6^1.$$

$$1448 := 2! + (1! + 5!) \times 3! + 6! = 2^5 \times 1^6 \times 5^2 + 3^1 \times 6^3.$$

$$\begin{aligned} 1452 &:= (1! \times 2! + 5!) \times 3! + 6! = (1^6 + 2^1) \times (5^2 + 3^5 + 6^3). \\ &:= 3! \times (2! + 5!) \times 1! + 6! = (3^5 + 2^2) \times 5^1 + 1^6 + 6^3. \\ &:= 3! \times 1! \times (2! + 5!) + 6! = 3^6 + (1^5 + 2^1) \times (5^2 + 6^3). \end{aligned}$$

$$1470 := (1! + 5! \times 2!) \times 3! + 4! = 1^2 + 5^1 \times (2^3 + 3^4) + 4^5.$$

$$\begin{aligned} 1472 &:= (1! + 6!) \times 2! + 3! + 4! = 1^6 \times 6^4 + (2^3 + 3^1) \times 4^2. \\ &:= 2! \times (6! + 1!) + 3! + 4! = 2^6 + (6^1 + 1^3 + 3^4) \times 4^2. \\ &= 2^6 + 6^4 + (1^2 + 3^3) \times 4^1. \end{aligned}$$

$$\begin{aligned} 1476 &:= 1! \times 2! \times (3! + 6!) + 4! = ((1^6 + 2^4) \times 3^2 + 6^3) \times 4^1. \\ &:= 1! \times 2! \times (6! + 3!) + 4! = (1^6 \times 2^3 \times 6^2 + 3^4) \times 4^1. \\ &:= 3! \times (1! + 5!) \times 2! + 4! = (3^5 \times 1^4 + 5^3) \times 2^2 + 4^1. \\ &= (3^5 + 1^3) \times 5^1 + 2^4 \times 4^2. \\ &= (3^5 + 1^4) \times 5^1 + 2^2 \times 4^3. \\ &:= 3! \times (5! + 1!) \times 2! + 4! = 3^3 + 5^2 \times (1^1 + 2^4) + 4^5. \\ &= 3^5 \times 5^1 + 1^3 + 2^2 + 4^4. \end{aligned}$$

$$1477 := 1! + 2! \times (6! + 3!) + 4! = 1^6 + (2^3 \times 6^2 + 3^4) \times 4^1.$$

$$1478 := 4! + 2! \times (1! + 3! + 6!) = 4^2 \times (2^6 + 1^4 + 3^3) + 6^1.$$

$$\begin{aligned} 1488 &:= (4! + 3! \times 5! \times 1!) \times 2! = (4^1 + 3^5 + 5^3) \times 1^4 \times 2^2. \\ &= (4^3 + 3^1 + 5^2 + 1^5) \times 2^4. \\ &= 4^1 \times (3^5 + 5^3) \times 1^2 + 2^4. \\ &= 4^2 \times 3^4 + (5^1 + 1^3) \times 2^5. \\ &= 4^5 + (3^1 + 5^2 + 1^3) \times 2^4. \end{aligned}$$

$$\begin{aligned} 1489 &:= 1! + 2! \times (4! + 3! \times 5!) = (1^1 \times 2^5 + 4^3) \times 3^2 + 5^4. \\ &= 1^2 + 2^4 + 4^1 \times (3^5 + 5^3). \\ &= 1^5 \times 2^1 \times 4^2 \times 3^3 + 5^4. \end{aligned}$$

$$\begin{aligned} 1490 &:= (1! + 5! \times 3! + 4!) \times 2! = (1^3 + 5^1) \times 3^5 + 4^2 + 2^4. \\ &= 1^1 + 5^4 + 3^2 \times (4^3 + 2^5). \\ &= 1^5 + 5^4 + 3^3 \times 4^2 \times 2^1. \end{aligned}$$

$$1494 := 1! \times 2! \times (6! + 4!) + 3! = ((1^6 + 2^4) \times 6^1 + 4^3) \times 3^2.$$

$$\begin{aligned} 1495 &:= 2! \times (6! + 4!) + 1! + 3! = 2^2 + 6^4 + (4^3 + 1^6) \times 3^1. \\ &= 2^6 + 6^4 + (4^1 + 1^2) \times 3^3. \end{aligned}$$

$$\begin{aligned} 1500 &:= 1! \times 2! \times (4! + 3! + 6!) = (1^6 \times 2^2 + 4^3) \times 3^1 + 6^4. \\ &:= 2! \times ((1! + 5!) \times 3! + 4!) = (2^4 + 1^3) \times (5^2 + 3^1) + 4^5. \end{aligned}$$

$$\begin{aligned}
1501 &:= 1! + 2! \times (4! + 3! + 6!) = 1^6 + (2^2 + 4^3) \times 3^1 + 6^4. \\
1566 &:= 1! \times 6! \times 2! + 5! + 3! = (1^2 + 6^1) \times (2^6 + 5^3) + 3^5. \\
1567 &:= 1! + 5! + 2! \times 6! + 3! = (1^3 + 5^2) \times 2^5 + 6^1 + 3^6. \\
1572 &:= 1! \times 5! + 2! \times (3! + 6!) = (1^6 + 5^2 + 2^5) \times 3^3 + 6^1. \\
&= 1^3 + 5^1 \times (2^6 + 3^5) + 6^2. \\
1584 &:= 1! \times 6! \times 2! + 4! \times 3! = ((1^6 + 6^1) \times 2^4 + 4^3) \times 3^2. \\
&= 1^6 \times 6^4 + 2^3 \times 4^1 \times 3^2. \\
&:= 1! \times 6! + (5! + 4!) \times 3! = (1^6 + 6^3) \times 5^1 + 4^4 + 3^5. \\
&:= 4! + (2! \times 3! + 1!) \times 5! = (4^2 + 2^1) \times 3^4 + 1^5 + 5^3. \\
&= (4^2 + 2^5) \times (3^3 + 1^4 + 5^1). \\
&= 4^5 + 2^2 \times (3^3 + 1^4) \times 5^1. \\
1585 &:= 1! + 3! \times (4! + 2! \times 5!) = (1^1 + 3^2) \times (4^3 + 2^5) + 5^4. \\
&:= 1! + 3! \times 4! + 2! \times 6! = 1^6 + (3^2 \times 4^1) \times 2^3 + 6^4. \\
1596 &:= 3! \times (2! \times (1! + 5!) + 4!) = 3^5 \times (2^2 + 1^1) + 5^3 + 4^4. \\
1608 &:= (1! + 3!) \times 4! + 2! \times 6! = 1^2 \times 3^1 \times (4^4 + 2^6 + 6^3). \\
1688 &:= (2! + 3!) \times (5! + 1!) + 6! = 2^5 \times (3^2 \times 5^1 + 1^6) + 6^3. \\
&:= 2! \times (6! + 1! + 5!) + 3! = (2^3 \times 6^2 + 1^6) \times 5^1 + 3^5. \\
1704 &:= (1! + 3!) \times 2! \times 5! + 4! = (1^5 + 3^4) \times 2^2 \times 5^1 + 4^3. \\
&= 1^2 + 3^3 \times 2^1 + 5^4 + 4^5. \\
1728 &:= 2! \times (3! \times 4! \times 1! + 6!) = (2^2 \times 3^3) \times 4^1 \times 1^6 + 6^4. \\
&= (2^2 + 3^3 + 4^4 + 1^6) \times 6^1. \\
&= (2^4 + 3^3 + 4^1 + 1^6) \times 6^2. \\
&:= 2! \times (6! \times 1! + 3! \times 4!) = 2^1 \times 6^3 \times 1^6 + 3^4 \times 4^2. \\
&:= 2! \times 3! \times 1! \times (5! + 4!) = 2^1 + 3^3 \times (1^4 + 5^2) + 4^5. \\
&= 2^2 \times (3^5 \times 1^1 + 5^3) + 4^4. \\
&= 2^4 \times (3^3 + 1^5 + 5^1 \times 4^2). \\
&= 2^5 \times (3^1 + 1^4) + 5^2 \times 4^3. \\
1729 &:= 1! + (4! \times 3! + 6!) \times 2! = 1^6 + 4^2 \times 3^4 + 6^3 \times 2^1. \\
&:= 1! + (6! + 3! \times 4!) \times 2! = 1^6 + 6^4 + 3^3 \times 4^1 \times 2^2. \\
&:= 1! + 2! \times 3! \times (5! + 4!) = 1^1 + 2^2 \times (3^5 + 5^3) + 4^4. \\
&:= 1! + 3! \times 2! \times (4! + 5!) = (1^1 + 3^2) \times 2^3 + 4^5 + 5^4.
\end{aligned}$$

$$\begin{aligned}
1730 &:= (3! \times 4! + 1! + 6!) \times 2! = 3^3 \times 4^2 \times 1^6 + 6^4 + 2^1. \\
&= 3^4 \times 4^2 + (1^6 + 6^3) \times 2^1. \\
&:= 2! \times (1! + 3! \times (4! + 5!)) = (2^1 + 1^2) \times 3^3 + 4^5 + 5^4. \\
&= (2^3 + 1^1) \times 3^2 + 4^5 + 5^4. \\
&= 2^3 + (1^5 + 3^4) \times (4^2 + 5^1).
\end{aligned}$$

$$1734 := (1! + 2! \times (4! + 5!)) \times 3! = 1^3 + 2^5 + (4^2 + 5^1) \times 3^4.$$

$$\begin{aligned}
1740 &:= 2! \times ((1! + 4!) \times 3! + 6!) = (2^1 + 1^6) \times 4^4 + 3^3 \times 6^2. \\
&:= 2! \times 3! \times (1! + 5! + 4!) = (2^5 + 3^3 + 1^4) \times (5^2 + 4^1). \\
&= 2^4 + (3^3 + 1^1) \times 5^2 + 4^5.
\end{aligned}$$

$$1776 := 2! \times ((1! + 3!) \times 4! + 6!) = (2^1 + 1^6 + 3^3) \times 4^2 + 6^4.$$

$$1848 := (1! + 3!) \times (5! \times 2! + 4!) = (1^1 \times 3^4 + 5^3) \times 2^2 + 4^5.$$

$$\begin{aligned}
1872 &:= (1! + 2! \times 3!) \times (5! + 4!) = (1^2 + 2^1) \times (3^5 + 5^3 + 4^4). \\
&= 1^1 \times 2^3 \times (3^4 + 5^2) + 4^5.
\end{aligned}$$

$$\begin{aligned}
2016 &:= (1! + 3!) \times (4! + 5!) \times 2! = (1^3 \times 3^5 + 4^4 + 5^1) \times 2^2. \\
&= 1^4 \times 3^2 \times (4^3 + 5^1 \times 2^5).
\end{aligned}$$

$$2160 := 2! \times 3! \times 1! \times 5! + 6! = 2^3 \times 3^5 + (1^6 + 5^1) \times 6^2.$$

$$\begin{aligned}
2184 &:= (2! + 1!) \times 3! \times 5! + 4! = 2^3 \times (1^4 + 3^5 + 5^2 + 4^1). \\
&:= 3! \times 5! \times (2! + 1!) + 4! = 3^2 + 5^3 + 2^1 \times (1^4 + 4^5). \\
&:= 5! \times (1! + 2!) \times 3! + 4! = (5^1 + 1^5) \times (2^2 \times 3^3 + 4^4).
\end{aligned}$$

$$2190 := 4! + 3! + (2! + 1!) \times 6! = (4^4 + 3^3 \times 2^2 + 1^6) \times 6^1.$$

$$\begin{aligned}
2202 &:= (2! + 1!) \times (3! + 6!) + 4! = 2^1 \times (1^6 + 3^3 \times 6^2) + 4^4. \\
&= 2^1 \times 1^6 + 3^2 \times 6^3 + 4^4.
\end{aligned}$$

$$\begin{aligned}
2280 &:= (1! + 3!) \times 5! + 6! \times 2! = (1^6 + 3^5 + 5^1 + 6^2) \times 2^3. \\
&:= (1! + 2!) \times 6! + 5! + 3! = (1^6 + 2^5 + 6^3 + 5^1) \times 3^2.
\end{aligned}$$

$$\begin{aligned}
2304 &:= ((2! + 1!) \times 5! + 4!) \times 3! = (2^5 \times (1^4 + 5^1) + 4^3) \times 3^2. \\
&= 2^4 \times 1^5 \times (5^3 + 4^2 + 3^1). \\
&:= (1! + 2!) \times 6! + 3! \times 4! = 1^6 \times 2^4 \times (6^2 + 3^3 \times 4^1). \\
&:= (1! + 2!) \times 6! + 4! \times 3! = 1^6 \times 2^4 \times (6^2 + 4^1 \times 3^3). \\
&:= (2! + 1!) \times 6! + 5! + 4! = 2^6 \times (1^5 + 6^1 + 5^2) + 4^4. \\
&:= (4! + (1! + 2!) \times 5!) \times 3! = (4^4 + 1^2) \times 2^3 + 5^1 + 3^5.
\end{aligned}$$

$$2538 := (1! + 2!) \times (3! + 6! + 5!) = 1^5 + (2^6 + 3^1) \times 6^2 + 5^3.$$

$$\begin{aligned} 2592 &:= (1! + 2!) \times (3! \times 4! + 6!) = (1^6 + 2^1) \times 3^3 \times 4^2 + 6^4. \\ &:= (2! + 1!) \times (5! + 4!) \times 3! = ((2^5 \times 1^4) \times 5^2 + 4^3) \times 3^1. \\ &= (2^3 + 1^2) \times (5^1 + 4^4) + 3^5. \\ &= (2^4 \times 1^5 \times 5^1 + 4^2) \times 3^3. \\ &= 2^3 \times (1^4 + 5^1 \times 4^2 + 3^5). \\ &= 2^4 \times (1^5 + 5^3 + 4^1 \times 3^2). \end{aligned}$$

$$2889 := (1! + 4! \times 5! + 2!) + 3! = 1^1 \times 4^3 + 5^2 \times (2^5 + 3^4).$$

$$2898 := (1! + 2!) \times 3! + 4! \times 5! = (1^4 + 2^5 + 3^2) \times (4^3 + 5^1).$$

$$\begin{aligned} 2912 &:= (1! + 5!) \times 4! + 3! + 2! = (1^5 + 5^2) \times (4^3 + 3^1 \times 2^4). \\ &= 1^2 \times 5^1 \times 4^3 + 3^4 \times 2^5. \\ &= 1^4 \times 5^1 \times 4^3 \times 3^2 + 2^5. \end{aligned}$$

$$2928 := 2! \times (6! + 3! \times 5! + 4!) = 2^6 \times 6^2 + 3^5 + 5^3 + 4^4.$$

$$\begin{aligned} 3008 &:= 3! + 2! + 5! \times (1! + 4!) = (3^2 + 2^5 + 5^1 + 1^4) \times 4^3. \\ &= (3^3 + 2^5 \times 5^1 + 1^4) \times 4^2. \end{aligned}$$

$$3027 := 1! + 2! + (5! + 3!) \times 4! = (1^2 \times 2^4) \times 5^3 + 3^1 + 4^5.$$

$$3050 := 2! + (5! + 1! + 3!) \times 4! = (2^5 + 5^1) \times (1^3 + 3^4) + 4^2.$$

$$\begin{aligned} 3072 &:= (1! \times 2! + 5! + 3!) \times 4! = ((1^4 + 2^5) \times 5^1 + 3^3) \times 4^2. \\ &= 1^2 \times 2^4 \times (5^3 + 3^1) + 4^5. \end{aligned}$$

$$3073 := 1! + (2! + 3! + 5!) \times 4! = 1^2 + 2^4 \times (3^1 + 5^3) + 4^5.$$

$$3096 := (2! + 3! + 1! + 5!) \times 4! = 2^5 \times 3^4 + (1^2 + 5^3) \times 4^1.$$

$$\begin{aligned} 3152 &:= 3! + (4! + 2!) \times (1! + 5!) = (3^1 + 4^2 + 2^3) \times 1^4 + 5^5. \\ &= 3^1 + 4^5 + (2^4 + 1^2) \times 5^3. \end{aligned}$$

$$\begin{aligned} 3168 &:= ((1! \times 2!) \times 3! + 5!) \times 4! = (1^4 + 2^3) \times 3^1 + 5^5 + 4^2. \\ &:= (1! \times 2! \times 3! + 5!) \times 4! = 1^1 \times 2^4 \times (3^2 + 5^3) + 4^5. \\ &:= (1! \times 3! \times 2! + 5!) \times 4! = 1^3 \times 3^1 \times (2^5 \times 5^2 + 4^4). \\ &= 1^4 \times 3^2 \times (2^5 + 5^1 \times 4^3). \end{aligned}$$

$$\begin{aligned} 3169 &:= 1! + (3! \times 2! + 5!) \times 4! = 1^3 + 3^1 \times (2^5 \times 5^2 + 4^4). \\ &= 1^4 + 3^2 \times (2^5 + 5^1 \times 4^3). \end{aligned}$$

$$\begin{aligned} 3192 &:= (3! \times 2! + 1! + 5!) \times 4! = 3^1 \times (2^4 + 1^3) + 5^5 + 4^2. \\ &= 3^1 + (2^2 + 1^5) \times 5^4 + 4^3. \end{aligned}$$

$$\begin{aligned} 3200 &:= (4! + 1!) \times (2! + 3! + 5!) = (4^2 + 1^4 + 2^3) \times 3^1 + 5^5. \\ &= 4^2 \times (1^4 + 2^1) + 3^3 + 5^5. \\ &= 4^3 \times 1^4 + 2^1 + 3^2 + 5^5. \\ &= 4^5 + (1^2 + 2^4) \times (3^1 + 5^3). \end{aligned}$$

$$\begin{aligned} 3216 &:= (5! + (3! + 1!) \times 2!) \times 4! = (5^2 + 3^5) \times 1^4 \times (2^3 + 4^1). \\ &= (5^5 + 3^3) \times 1^2 + 2^4 \times 4^1. \\ &= 5^5 + 3^2 \times (1^4 + 2^1) + 4^3. \end{aligned}$$

$$\begin{aligned} 3246 &:= 3! + (2! + 4! + 1!) \times 5! = 3^1 \times (2^4 + 4^5) + 1^2 + 5^3. \\ &= 3^4 + 2^3 \times (4^1 + 1^2) + 5^5. \end{aligned}$$

$$\begin{aligned} 3276 &:= (5! + 3!) \times 1! \times (2! + 4!) = (5^3 \times 3^2 + 1^4) \times 2^1 + 4^5. \\ &:= (5! + 3!) \times 1! \times (4! + 2!) = 5^5 + 3^3 \times (1^2 + 4^1) + 2^4. \end{aligned}$$

$$3277 := 1! + (2! + 4!) \times (3! + 5!) = 1^4 \times 2^3 \times (4^2 + 3^1) + 5^5.$$

$$3300 := (1! + 4!) \times (5! + 3! \times 2!) = (1^5 + 4^1 \times (5^3 + 3^4)) \times 2^2.$$

$$\begin{aligned} 3302 &:= (4! + 2!) \times (1! + 5! + 3!) = 4^5 + (2^4 + 1^1) \times (5^3 + 3^2). \\ &:= (4! + 2!) \times (3! + 1! + 5!) = 4^2 \times (2^3 + 3^1) + 1^4 + 5^5. \end{aligned}$$

$$\begin{aligned} 3312 &:= (5! + 3! \times (1! + 2!)) \times 4! = (5^3 + 3^4 + 1^5) \times 2^2 \times 4^1. \\ &= (5^3 + 3^5) \times (1^4 + 2^2 + 4^1). \\ &:= (5! + 3! \times (2! + 1!)) \times 4! = 5^5 + (3^1 + 2^3) \times (1^4 + 4^2). \end{aligned}$$

$$3603 := 1! + 2! + (3! + 4!) \times 5! = (1^5 + 2^1) \times (3^2 \times 4^3 + 5^4).$$

$$3607 := 1! + 3! + 4! \times 5! + 6! = 1^6 \times 3^5 + 4^1 \times (5^4 + 6^3).$$

$$3632 := 2! + (1! + 5!) \times (3! + 4!) = 2^2 \times 1^1 \times (5^4 + 3^3) + 4^5.$$

$$\begin{aligned} 3648 &:= 1! \times 6! + (2! + 5!) \times 4! = (1^5 + 6^2) \times 2^6 + 5^1 \times 4^4. \\ &:= 1! \times 6! + (5! + 2!) \times 4! = (1^4 \times 6^2 + 5^1) \times 2^6 + 4^5. \end{aligned}$$

$$3649 := 1! + 4! \times (2! + 5!) + 6! = 1^4 + 4^5 + 2^6 \times (5^1 + 6^2).$$

$$3661 := 1! + (2! + 5!) \times (3! + 4!) = (1^5 + 2^3) \times 5^1 \times 3^4 + 4^2.$$

$$3690 := (1! + 2! + 5!) \times (3! + 4!) = (1^2 + 2^1) \times (5^3 + 3^4 + 4^5).$$

$$3722 := 2! + (4! + 3! + 1!) \times 5! = (2^3 + 4^5) \times 3^1 + 1^2 + 5^4.$$

$$3744 := (1! \times 3! + 5!) \times 4! + 6! = (1^6 \times 3^5 + 5^3 + 4^4) \times 6^1.$$

$$3745 := 1! + (3! + 5!) \times 4! + 6! = 1^6 + (3^5 + 5^3 + 4^4) \times 6^1.$$

$$3840 := (1! \times 4! + 2! + 3!) \times 5! = (1^4 + 4^3) \times (2^1 + 3^2) + 5^5.$$

$$= 1^4 \times 4^3 \times (2^5 + 3^1 + 5^2).$$

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

$$3841 := 1! + (4! + 2! + 3!) \times 5! = 1^4 + 4^3 \times (2^5 + 3^1 + 5^2).$$

$$3872 := (1! + 5!) \times (2! + 3! + 4!) = (1^3 + 5^1 \times 2^5 + 3^4) \times 4^2.$$

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

$$3960 := (2! + 4! + 1! + 3!) \times 5! = (2^3 + 4^4) \times (1^5 + 3^2 + 5^1).$$

$$4320 := (4! + 2! \times 3! \times 1!) \times 5! = (4^2 + 2^4) \times 3^3 \times 1^5 \times 5^1.$$

$$= (4^3 + 2^4) \times 3^2 \times (1^5 + 5^1).$$

$$= (4^3 + 2^5) \times 3^2 \times 1^4 \times 5^1.$$

$$= (4^4 + 2^5) \times (3^2 + 1^3 + 5^1).$$

$$4321 := 1! + (3! \times 2! + 4!) \times 5! = 1^4 + 3^2 \times (2^5 + 4^3) \times 5^1.$$

$$= 1^5 + 3^3 \times (2^4 + 4^2) \times 5^1.$$

$$4326 := 3! + 5! \times 4! + 2! \times 6! = 3^6 + 5^5 + 4^2 \times 2^4 + 6^3.$$

$$4344 := 2! \times 6! + (1! + 5!) \times 4! = 2^5 + 6^2 \times (1^4 + 5^1) + 4^6.$$

$$4347 := 1! + 2! + 4! + 6! \times 3! = (1^4 + 2^6 + 4^1) \times (6^2 + 3^3).$$

$$= (1^4 + 2^6 + 4^2 \times 6^1) \times 3^3.$$

$$= (1^6 + 2^4 + 4^1 \times 6^2) \times 3^3.$$

$$4352 := (1! + 6!) \times 3! + 2! + 4! = (1^1 + 6^2 + 3^3) \times 2^6 + 4^4.$$

$$= (1^3 + 6^1 + 3^2) \times 2^4 + 4^6.$$

$$= (1^4 + 6^2 + 3^3) \times (2^6 + 4^1).$$

$$4368 := 1! \times 2! \times 4! + 3! \times 6! = 1^3 \times 2^6 \times 4^2 \times 3^1 + 6^4.$$

$$4369 := 1! + 2! \times 4! + 3! \times 6! = 1^3 + 2^6 \times 4^2 \times 3^1 + 6^4.$$

$$4374 := 2! \times 4! + (1! + 6!) \times 3! = (2^4 + 4^3 + 1^6) \times 6^1 \times 3^2.$$

$$4440 := (1! + 4!) \times 5! + 2! \times 6! = 1^6 + 4^2 + 5^5 + 2^1 + 6^4.$$

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

$$4442 := 1! \times 5! + 3! \times 6! + 2! = (1^3 + 5^1) \times 3^6 + 6^2 + 2^5.$$

$$4448 := (1! + 6!) \times 3! + 2! + 5! = 1^5 + 6^1 \times (3^6 + 2^3) + 5^2.$$

$$4453 := 1! + 3! \times (2! + 6!) + 5! = (1^5 + 3^6 + 2^3) \times 6^1 + 5^2.$$

$$4466 := 1! \times 2! + (6! + 4!) \times 3! = 1^1 + 2^3 \times 6^2 + 4^6 + 3^4.$$

$$4470 := (1! + 6!) \times 3! + 4! + 5! = 1^4 \times 6^1 + 3^5 + 4^6 + 5^3.$$

$$4472 := 2! + 3! \times (1! + 4! + 6!) = 2^2 \times (3^6 + 1^1 + 4^3) + 6^4.$$

$$= 2^4 \times (3^2 + 1^1) + 4^6 + 6^3.$$

$$4476 := (3! \times 1!) \times (2! + 6! + 4!) = (3^4 + 1^2) \times 2^1 + 6^3 + 4^6.$$

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

$$4482 := (1! + 4! + 6! + 2!) \times 3! = ((1^4 + 4^2) \times 6^1 + 2^6) \times 3^3.$$

$$4560 := (4! + 2! \times (1! + 3!)) \times 5! = (4^2 + 2^5 \times (1^4 + 3^3)) \times 5^1.$$

$$= 4^1 + (2^4 + 1^3) \times (3^5 + 5^2).$$

$$4562 := 2! \times (1! + 5!) + 3! \times 6! = 2^5 + (1^3 + 5^2 + 3^6) \times 6^1.$$

$$4596 := (2! + 4! + 6!) \times 3! + 5! = 2^4 + 4^6 + 6^3 + 3^5 + 5^2.$$

$$4608 := 1! \times 3! \times (2! \times 4! + 6!) = ((1^6 + 3^1) \times 2^4 + 4^3) \times 6^2.$$

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

$$4609 := 1! + 3! \times (4! \times 2! + 6!) = 1^2 \times 3^4 + 4^6 + 2^1 \times 6^3.$$

$$4614 := 3! \times (1! + 2! \times 4! + 6!) = (3^2 + 1^6 + 2^3) \times 4^4 + 6^1.$$

$$4752 := (4! \times (2! + 1!)) + 6!) \times 3! = (4^1 \times 2^2) \times 1^6 \times (6^3 + 3^4).$$

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

$$\begin{aligned}
5040 &:= 2! \times 6! + (3! + 4!) \times 5! = 2^4 \times 6^2 + 3^5 + 4^6 + 5^3. \\
&:= 5! \times ((2! + 1!) \times 3! + 4!) = 5^4 \times 2^3 + (1^5 + 3^2) \times 4^1. \\
&:= 5! \times (3! \times (2! + 1!) + 4!) = (5^4 + 3^1) \times 2^3 \times 1^5 + 4^2.
\end{aligned}$$

$$5052 := (1! \times 2! + 5! + 6!) \times 3! = (1^2 + 2^5) \times (5^3 + 6^1) + 3^6.$$

$$5053 := 1! + (5! + 6! + 2!) \times 3! = (1^5 + 5^1 \times 6^3) \times 2^2 + 3^6.$$

$$5064 := 1! \times 4! + 3! \times (6! + 5!) = 1^5 + 4^3 + 3^6 \times 6^1 + 5^4.$$

$$5072 := 1! \times 2! + 3! + 7! + 4! = (1^4 \times 2^7 + 3^3 \times 7^1) \times 4^2.$$

$$5073 := 1! + 2! + 3! + 7! + 4! = 1^4 + (2^7 + 3^3 \times 7^1) \times 4^2.$$

$$5076 := 1! \times 2! \times 3! + 7! + 4! = 1^4 \times 2^1 \times (3^7 + 7^3) + 4^2.$$

$$5077 := 1! + 2! \times 3! + 7! + 4! = 1^4 + 2^1 \times (3^7 + 7^3) + 4^2.$$

$$5078 := 2! \times (1! + 3!) + 7! + 4! = 2^1 \times (1^4 + 3^7 + 7^3) + 4^2.$$

$$5094 := 1! \times 3! + 7! + 4! \times 2! = (1^4 + 3^7 + 7^3 + 4^2) \times 2^1.$$

$$5162 := 2! + 5! + (1! + 3!) \times 6! = 2^5 + (5^3 + 1^2 + 3^6) \times 6^1.$$

$$\begin{aligned}
5173 &:= 1! + 5! + 2! \times 3! + 7! = (1^7 + 5^3) \times (2^5 + 3^2) + 7^1. \\
&= 1^3 \times 5^5 + 2^7 \times (3^2 + 7^1).
\end{aligned}$$

$$5174 := (1! + 3!) \times (6! + 2!) + 5! = 1^3 \times 3^6 \times 6^1 + 2^5 \times 5^2.$$

$$5186 := 1! \times 2! + 4! + 5! + 7! = 1^7 + 2^4 + 4^5 \times 5^1 + 7^2.$$

$$5196 := (1! \times 2! + 4!) \times 3! + 7! = 1^7 + 2^2 + 4^3 \times 3^4 + 7^1.$$

$$5222 := (1! + 3!) \times (4! + 2! + 6!) = 1^6 \times 3^4 \times 4^3 + 2^1 + 6^2.$$

$$5280 := (1! + 3!) \times 6! + 5! \times 2! = (1^6 + 3^1 + 6^2 + 5^3) \times 2^5.$$

$$5340 := 2! \times 3! \times (1! + 4!) + 7! = 2^4 + 3^7 + 1^1 + 4^3 \times 7^2.$$

$$\begin{aligned}
5376 &:= (1! + 3!) \times (2! \times 4! + 6!) = ((1^3 + 3^2) \times 2^6 + 4^4) \times 6^1. \\
&= (1^6 + 3^3) \times (2^4 + 4^2) \times 6^1.
\end{aligned}$$

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

$$:= 2! \times (1! + 3!) \times 4! + 7! = (2^7 + (1^4 + 3^2) \times 4^3) \times 7^1.$$

$$5376 := 2! \times (1! + 3!) \times 4! + 7! = 2^7 \times (1^2 + 3^3) + 4^4 \times 7^1.$$

$$5472 := 7! + 4! \times (1! + 2!) \times 3! = (7^2 + 4^3 + 1^7) \times 2^4 \times 3^1.$$

$$5760 := 1! \times 3! \times (2! \times 5! + 6!) = (1^6 \times 3^1 + 2^5 + 5^3) \times 6^2.$$

$$5761 := 1! + 3! \times (2! \times 5! + 6!) = 1^6 + (3^1 + 2^5 + 5^3) \times 6^2.$$

$$5768 := (1! + 4! \times 5!) \times 2! + 3! = 1^2 \times 4^5 \times 5^1 + 2^3 \times 3^4.$$

$$\begin{aligned}
5772 &:= 1! \times 2! \times (4! \times 5! + 3!) = (1^1 + 2^2) \times 4^5 + 5^4 + 3^3. \\
&= (1^5 + 2^3) \times (4^2 + 5^4) + 3^1.
\end{aligned}$$

$$:= 7! + 3! \times (2! \times 1! + 5!) = (7^2 \times 3^3) \times 2^1 + 1^7 + 5^5.$$

$$\begin{aligned} 5773 &:= 1! + (4! \times 5! + 3!) \times 2! = (1^2 + 4^5) \times 5^1 + 3^4 \times 2^3. \\ &:= 1! + 7! + 3! \times (2! + 5!) = 1^7 + (7^2 \times 3^3) \times 2^1 + 5^5. \end{aligned}$$

$$\begin{aligned} 5778 &:= 3! \times (2! + 1! + 5!) + 7! = 3^3 \times ((2^5 + 1^7) \times 5^1 + 7^2). \\ &= 3^3 \times (2^5 + (1^7 + 5^2) \times 7^1). \end{aligned}$$

$$5792 := (1! + 6!) \times (2! + 3!) + 4! = (1^1 + 6^3 + 2^6 + 3^4) \times 4^2.$$

$$\begin{aligned} 5881 &:= 1! + (3! + 2!) \times 6! + 5! = (1^5 + 3^6) \times 2^3 + 6^2 + 5^1. \\ &= 1^1 \times 3^6 + 2^5 \times (6^2 + 5^3). \end{aligned}$$

$$5882 := (1! + 3!) \times (5! + 6!) + 2! = 1^1 + 3^6 + (5^3 + 6^2) \times 2^5.$$

$$5888 := (2! + 3!) \times (1! + 6!) + 5! = 2^1 \times (3^5 + 1^6) + 6^3 \times 5^2.$$

$$\begin{aligned} 5904 &:= (2! \times 5! \times 1! + 3!) \times 4! = 2^2 \times (5^1 \times (1^3 + 3^5) + 4^4). \\ &= 2^2 \times (5^3 + 1^4 + 3^5) \times 4^1. \\ &= 2^4 \times 5^3 + (1^1 + 3^5) \times 4^2. \end{aligned}$$

$$\begin{aligned} 5905 &:= 1! + (2! \times 5! + 3!) \times 4! = 1^1 + 2^4 + (5^3 + 3^5) \times 4^2. \\ &:= 1! + 7! + 6! + 3! \times 4! = (1^7 + 7^1) \times 6^3 + 3^4 + 4^6. \end{aligned}$$

$$\begin{aligned} 5952 &:= (1! \times 2! + 3!) \times (4! + 6!) = 1^6 \times 2^2 \times (3^1 \times 4^3 + 6^4). \\ &:= (2! \times (1! + 5!) + 3!) \times 4! = 2^4 \times 1^2 \times (5^3 + 3^5 + 4^1). \end{aligned}$$

$$5953 := 1! + (2! + 3!) \times (4! + 6!) = 1^6 + 2^2 \times (3^1 \times 4^3 + 6^4).$$

$$5960 := (1! + 4! + 6!) \times (3! + 2!) = (1^6 \times 4^3 + 6^2 \times 3^4) \times 2^1.$$

$$\begin{aligned} 6000 &:= 7! \times 1! + (2! + 3!) \times 5! = (7^1 \times 1^7 + 2^5 + 3^2) \times 5^3. \\ &= (7^3 + 1^2) \times 2^1 + 3^7 + 5^5. \end{aligned}$$

$$6001 := 1! + 5! \times (2! + 3!) + 7! = 1^7 + 5^3 \times (2^5 + 3^2 + 7^1).$$

$$6012 := 2! \times ((1! + 4!) \times 5! + 3!) = (2^3 + 1^1) \times (4^2 + 5^4) + 3^5.$$

$$\begin{aligned} 6048 &:= 2! \times (5! + 3!) \times 1! \times 4! = 2^3 \times (5^4 + 3^1) \times 1^2 + 4^5. \\ &= 2^5 \times 5^2 + (3^4 + 1^1) \times 4^3. \\ &= 2^5 + (5^3 \times 3^1 + 1^4) \times 4^2. \end{aligned}$$

$$\begin{aligned} 6049 &:= 1! + (3! + 5!) \times 2! \times 4! = 1^2 + (3^1 + 5^4) \times 2^3 + 4^5. \\ &= 1^5 + 3^1 \times (5^3 \times 2^4 + 4^2). \end{aligned}$$

$$\begin{aligned} 6096 &:= (1! + 3! + 5!) \times 4! \times 2! = ((1^4 + 3^1) \times 5^3 + 4^5) \times 2^2. \\ &= (1^3 + 3^5 + 5^1 \times 4^4) \times 2^2. \\ &= (1^5 + 3^1) \times (5^3 + 4^4) \times 2^2. \\ &= 1^3 + 3^5 \times 5^2 + 4^1 + 2^4. \\ &= 1^4 \times 3^1 \times (5^3 \times 4^2 + 2^5). \end{aligned}$$

$$\begin{aligned} 6480 &:= (1! \times 4! \times 2! + 3!) \times 5! = (1^4 \times 4^2 + 2^5) \times 3^3 \times 5^1. \\ &= 1^3 + 4^1 + (2^4 + 3^5) \times 5^2. \\ &:= 1! \times 4! \times 5! \times 2! + 6! = (1^5 + 4^2 \times 5^1) \times 2^6 + 6^4. \\ &= 1^2 \times 4^5 \times 5^1 + 2^6 + 6^4. \end{aligned}$$

$$\begin{aligned} 6481 &:= 1! + (2! \times 4!) \times 5! + 6! = 1^2 + 2^6 + 4^5 \times 5^1 + 6^4. \\ &:= 1! + (3! + 2! \times 4!) \times 5! = (1^1 + 3^5) \times (2^3 + 4^2) + 5^4. \\ &= 1^4 + 3^3 \times (2^5 + 4^2) \times 5^1. \end{aligned}$$

$$6492 := (1! \times 3! + 6!) \times 2! + 7! = 1^6 + 3^1 + 6^3 + 2^7 \times 7^2.$$

$$\begin{aligned} 6528 &:= 2! \times 1! \times (6! + 4!) + 7! = 2^7 \times (1^6 + 6^2) + 4^4 \times 7^1. \\ &:= 4! \times 2! \times (1! + 5!) + 6! = (4^2 + 2^5) \times 1^6 + 5^1 \times 6^4. \\ &= (4^4 + 2^5 \times (1^6 + 5^2)) \times 6^1. \end{aligned}$$

$$6534 := (1! + 5!) \times (2! \times 4! + 3!) = 1^2 + 5^5 \times 2^1 + 4^4 + 3^3.$$

$$\begin{aligned} 6600 &:= (1! + 3! + 2! \times 4!) \times 5! = (1^3 + 3^5 + 2^4 + 4^1) \times 5^2. \\ &= 1^3 + 3^1 + 2^2 \times (4^5 + 5^4). \end{aligned}$$

$$6696 := (1! + 3! + 2!) \times (4! + 6!) = 1^1 \times 3^4 \times (2^6 + 4^2) + 6^3.$$

$$\begin{aligned} 6720 &:= (2! \times (4! + 1!) + 3!) \times 5! = (2^5 + 4^2) \times (1^4 + 3^3) \times 5^1. \\ &= (2^5 + 4^2 \times (1^3 + 3^4)) \times 5^1. \\ &= 2^5 \times (4^1 \times 1^2 + 3^4 + 5^3). \\ &:= 5! \times (1! + 4!) \times 2! + 6! = (5^1 + 1^6) \times 4^5 + 2^4 \times 6^2. \\ &= 5^1 \times 1^6 \times (4^2 + 2^5 + 6^4). \end{aligned}$$

$$\begin{aligned}
7200 &:= 2! \times (6! \times 1! + 4! \times 5!) = (2^5 \times (6^2 + 1^6) + 4^4) \times 5^1. \\
&:= 2! \times 1! \times (3! + 4!) \times 5! = (2^3 \times (1^5 + 3^1) + 4^4) \times 5^2. \\
&= (2^3 + 1^5 + 3^4) \times 4^2 \times 5^1. \\
&= (2^5 + (1^4 + 3^1) \times 4^3) \times 5^2.
\end{aligned}$$

$$\begin{aligned}
7201 &:= 1! + 2! \times (4! + 3!) \times 5! = 1^3 + 2^5 + 4^4 \times (3^1 + 5^2). \\
&= 1^4 + (2^5 + 4^3) \times 3^1 \times 5^2.
\end{aligned}$$

$$7206 := 3! + 7! + (1! + 2!) \times 6! = (3^6 + 7^3 + 1^2 + 2^7) \times 6^1.$$

$$7218 := (3! + 6!) \times (1! + 2!) + 7! = 3^6 + 6^3 + 1^1 + 2^7 \times 7^2.$$

$$7440 := 2! \times ((4! + 1!) \times 5! + 6!) = 2^6 \times 4^2 \times (1^5 + 5^1) + 6^4.$$

$$7560 := (2! + 3! + 1!) \times (5! + 6!) = 2^3 \times (3^6 + (1^5 + 5^1) \times 6^2).$$

$$\begin{aligned}
7922 &:= 1! \times 2! + 7! + 4! \times 5! = 1^1 + 2^7 \times 7^2 + 4^5 + 5^4. \\
&= 1^2 + 2^7 + 7^1 \times 4^5 + 5^4.
\end{aligned}$$

$$8161 := 1! + (2! + 4!) \times 5! + 7! = (1^2 \times 2^7 + 4^5) \times 5^1 + 7^4.$$

$$8280 := (1! + 2! + 4!) \times 5! + 7! = (1^7 + 2^2) \times (4^5 + 5^4 + 7^1).$$

$$8676 := (1! + 6!) \times 3! \times 2! + 4! = 1^1 \times 6^2 + 3^3 \times (2^6 + 4^4).$$

$$8760 := 1! \times 3! \times 2! \times 6! + 5! = 1^5 + 3^2 + (2^6 + 6^1) \times 5^3.$$

$$8761 := 1! + 2! \times 3! \times 6! + 5! = 1^6 \times 2^3 + 3^5 \times 6^2 + 5^1.$$

$$8762 := 1! + 3! \times 6! \times 2! + 5! = 1^6 + 3^5 \times 6^2 + 2^3 + 5^1.$$

$$8772 := 2! \times (6! + 1!) \times 3! + 5! = (2^5 + 6^2) \times (1^6 + 3^1 + 5^3).$$

$$8784 := 1! \times 3! \times (4! + 2! \times 6!) = 1^4 \times 3^6 \times (4^1 + 2^3) + 6^2.$$

$$8785 := 1! + 3! \times (4! + 2! \times 6!) = 1^4 + 3^6 \times (4^1 + 2^3) + 6^2.$$

$$8880 := 1! \times 2! \times (5! + 3! \times 6!) = (1^2 + 2^1) \times 5^3 + 3^6 + 6^5.$$

$$8940 := 2! \times (1! + 4! + 6!) \times 3! = (2^1 + 1^6) \times (4^3 + 6^2 \times 3^4).$$

$$\begin{aligned}
9072 &:= (2! + 1!) \times 4! \times (5! + 3!) = 2^4 \times 1^5 \times (4^2 + 5^1) \times 3^3. \\
&= 2^5 \times 1^3 + 4^2 \times 5^1 \times 3^4.
\end{aligned}$$

$$9360 := ((1! + 2!) \times 4! + 3!) \times 5! = 1^4 + (2^1 + 4^5) \times 3^2 + 5^3.$$

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

$$:= 1! \times 5! + 6! \times 2! \times 3! = 1^2 + 5^3 + 6^5 + 2^1 \times 3^6.$$

$$9361 := 1! + 3! \times (2! \times 6! + 5!) = (1^2 + 3^6) \times 2^1 + 6^5 + 5^3.$$

$$9366 := 3! \times (1! + 5! + 2! \times 6!) = (3^6 + (1^3 + 5^2) \times 2^5) \times 6^1.$$

$$\begin{aligned} 9648 &:= (2! \times (6! + 4!) + 5!) \times 3! = 2^2 \times 6^4 + 4^6 + 5^3 + 3^5. \\ &= 2^6 + 6^2 \times 4^4 + 5^3 + 3^5. \end{aligned}$$

$$10080 := 1! \times 2! \times 3! \times (6! + 5!) = 1^6 \times 2^5 \times (3^3 + 6^2) \times 5^1.$$

$$10081 := 1! + 2! \times 3! \times (6! + 5!) = 1^6 + 2^5 \times (3^3 + 6^2) \times 5^1.$$

$$10112 := 2! \times (1! + 7!) + 3! + 4! = 2^7 \times (1^1 + 7^2 + 3^3) + 4^4.$$

$$10116 := (1! \times 3! + 7!) \times 2! + 4! = (1^7 + 3^1) \times (7^4 + 2^3 \times 4^2).$$

$$10136 := 2! \times (1! + 4! + 7!) + 3! = 2^2 \times 1^4 \times (4^1 + 7^3 + 3^7).$$

$$= 2^4 \times 1^2 + 4^1 \times (7^3 + 3^7).$$

$$10140 := (1! \times 3! + 7! + 4!) \times 2! = (1^2 + 3^7 + 7^3) \times 4^1 + 2^4.$$

$$= (1^4 + 3^7 + 7^3 + 4^1) \times 2^2.$$

$$10200 := (1! + 3!) \times 2! \times 6! + 5! = (1^5 \times 3^1 \times 2^6 + 6^3) \times 5^2.$$

$$10206 := 2! \times 1! \times 7! + 5! + 3! = (2^7 + (1^5 + 7^2) \times 5^1) \times 3^3.$$

$$10224 := 1! \times 2! \times 7! + 3! \times 4! = (1^2 \times 2^7 + 7^4 + 3^3) \times 4^1.$$

$$:= 1! \times 2! \times 7! + 4! \times 3! = 1^7 \times 2^4 \times (7^1 + 4^3) \times 3^2.$$

$$:= 1! \times 4! + 5! + 2! \times 7! = (1^7 \times 4^2) \times 5^4 + 2^5 \times 7^1.$$

$$10225 := 1! + 2! \times 7! + 4! + 5! = 1^7 + 2^5 \times 7^1 + 4^2 \times 5^4.$$

$$:= 1! + 2! \times 7! + 3! \times 4! = 1^2 + (2^7 + 7^4 + 3^3) \times 4^1.$$

$$:= 1! + 2! \times 7! + 4! \times 3! = 1^7 + 2^4 \times (7^1 + 4^3) \times 3^2.$$

$$10326 := 1! \times 3! + 2! \times (5! + 7!) = 1^7 + (3^3 + 2^5) \times 5^2 \times 7^1.$$

$$10332 := (1! \times 3! + 5! + 7!) \times 2! = (1^7 + 3^5 + 5^3) \times 7^1 \times 2^2.$$

$$10344 := 1! \times 2! \times (7! + 5!) + 4! = (1^7 + 2^1) \times 7^4 + 5^5 + 4^2.$$

$$10368 := (3! \times 4! \times 1! + 7!) \times 2! = (3^2 + 4^3 + 1^4 + 7^1) \times 2^7.$$

$$= (3^3 + 4^1 + 1^4 + 7^2) \times 2^7.$$

$$= 3^2 \times (4^3 + 1^7 + 7^1) \times 2^4.$$

$$= 3^3 \times 4^2 \times (1^7 + 7^1 + 2^4).$$

$$= 3^2 \times (4^4 \times 1^3 + 7^1 \times 2^7).$$

$$10369 := 1! + (3! \times 4! + 7!) \times 2! = 1^3 + 3^2 \times (4^4 + 7^1 \times 2^7).$$

$$:= 1! + (4! + 7! + 5!) \times 2! = 1^4 + 4^5 \times 7^1 + 5^2 \times 2^7.$$

$$\begin{aligned}
10416 &:= (1! + 3!) \times (4! + 6!) \times 2! = (1^6 \times 3^4 \times 4^2 + 6^1) \times 2^3. \\
&= 1^6 \times 3^1 \times 4^2 + 6^4 \times 2^3. \\
&= 1^6 \times 3^1 \times (4^2 \times 6^3 + 2^4).
\end{aligned}$$

$$10800 := 1! \times 7! \times 2! + 5! \times 3! = (1^7 + 7^1 \times (2^5 + 5^2)) \times 3^3.$$

$$10801 := 1! + (3! + 2!) \times 6! + 7! = (1^7 + 3^3) \times 2^6 \times 6^1 + 7^2.$$

$$10806 := 1! \times 3! + 2! \times 7! + 6! = 1^6 \times 3^7 \times 2^2 + 7^3 \times 6^1.$$

$$10807 := 1! + 3! + 2! \times 7! + 6! = 1^6 + 3^7 \times 2^2 + 7^3 \times 6^1.$$

$$10812 := 2! \times (3! + 7!) \times 1! + 6! = 2^2 \times 3^7 + (7^3 + 1^6) \times 6^1.$$

$$10848 := (1! + 5!) \times 4! \times 2! + 7! = (1^7 + 5^1) \times (4^5 + 2^4 \times 7^2).$$

$$12984 := 4! + 3! \times (1! + 2!) \times 6! = 4^2 \times (3^6 + 1^1) + 2^3 + 6^4.$$

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

$$13104 := 3! \times ((1! + 2!) \times 6! + 4!) = (3^3 \times 1^4 + 2^6) \times 6^2 \times 4^1.$$

$$13320 := (1! + 2!) \times (5! + 3! \times 6!) = (1^6 \times 2^1 + 5^3 + 3^5) \times 6^2.$$

$$13392 := (1! + 2!) \times (4! + 6!) \times 3! = ((1^6 + 2^1) \times 4^3 + 6^4) \times 3^2.$$

$$13680 := ((2! + 1!) \times 6! + 5!) \times 3! = 2^6 + (1^1 + 6^2) \times (5^3 + 3^5).$$

$$13681 := 1! + 7! + 6! \times 3! \times 2! = (1^7 + 7^1 \times 6^3) \times 3^2 + 2^6.$$

$$14400 := 1! \times 2! \times 7! + 3! \times 6! = 1^7 \times 2^6 \times (7^1 \times 3^3 + 6^2).$$

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

$$14401 := 1! + 2! \times 7! + 3! \times 6! = 1^7 + 2^6 \times (7^1 \times 3^3 + 6^2).$$

$$15552 := (1! + 2!) \times (4! + 5! + 7!) = (1^7 \times 2^5 + 4^4) \times (5^1 + 7^2).$$

$$:= (2! + 1!) \times (7! + 4! \times 3!) = 2^3 \times (1^7 + 7^1 + 4^2) \times 3^4.$$

$$15840 := (1! \times 7! + 5! \times 4!) \times 2! = (1^7 + 7^2 + 5^1) \times (4^4 + 2^5).$$

$$15888 := 2! \times ((1! + 5!) \times 4! + 7!) = (2^2 + 1^7) \times 5^5 + 4^4 + 7^1.$$

$$17289 := 1! + 4! \times 6! + 2! + 3! = (1^6 + 4^1) \times 6^3 \times 2^4 + 3^2.$$

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

$$17312 := 2! + 4! \times (6! + 1!) + 3! = (2^4 + 4^6 + 6^3) \times (1^2 + 3^1).$$

$$17334 := 1! \times 4! \times (2! + 6!) + 3! = (1^3 + 4^4 + 2^6) \times 6^1 \times 3^2.$$

$$17408 := 2! + 4! \times 6! + 3! + 5! = 2^6 + 4^2 \times (6^3 + 3^5 + 5^4).$$

$$17436 := (2! + 4! \times (1! + 5!)) \times 3! = 2^4 + (4^3 + 1^1) \times (5^2 + 3^5).$$

$$\begin{aligned} 17472 &:= (1! \times 2! + 6! + 3!) \times 4! = 1^3 \times 2^2 \times 6^4 + 3^1 \times 4^6. \\ &:= (2! + (1! + 5!) \times 3!) \times 4! = (2^5 \times (1^2 + 5^1) + 3^4) \times 4^3. \end{aligned}$$

$$17473 := 1! + (2! + 6! + 3!) \times 4! = 1^3 + 2^2 \times 6^4 + 3^1 \times 4^6.$$

$$17568 := 1! \times 3! \times 4! \times (5! + 2!) = (1^2 + 3^5 \times 4^1 + 5^3) \times 2^4.$$

$$17712 := (3! \times (2! + 1!) + 6!) \times 4! = 3^3 \times 2^4 \times (1^6 + 6^2 + 4^1).$$

$$18048 := (3! \times 5! + 2!) \times 4! + 6! = 3^5 + 5^3 + 2^2 \times 4^6 + 6^4.$$

$$18050 := (1! + 4!) \times (2! + 3! \times 5!) = (1^1 + 4^5) \times (2^3 + 3^2) + 5^4.$$

$$18152 := (1! + 4!) \times (3! + 6!) + 2! = (1^6 + 4^1 + 3^2) \times 6^4 + 2^3.$$

$$18240 := ((4! + 1!) \times 3! + 2!) \times 5! = 4^3 \times (1^1 + 3^5 + 2^4 + 5^2).$$

$$\begin{aligned} 18720 &:= (2! + 4!) \times 1! \times 5! \times 3! = 2^4 \times (4^1 + 1^5 + 5^3) \times 3^2. \\ &= 2^5 \times (4^1 \times (1^2 + 5^3) + 3^4). \end{aligned}$$

$$18876 := (1! + 5!) \times (2! + 4!) \times 3! = 1^3 + 5^2 \times (2^1 \times 4^4 + 3^5).$$

$$\begin{aligned} 19440 &:= 3! \times (2! + 4! + 1!) \times 5! = 3^4 \times (2^5 + 4^2) \times 1^3 \times 5^1. \\ &= 3^4 \times 2^3 \times (4^1 + 1^5 + 5^2). \end{aligned}$$

$$20160 := 2! \times (6! \times (3! + 1!) + 7!) = (2^6 + 6^3) \times 3^2 \times (1^7 + 7^1).$$

$$20190 := (1! + 5! + 6!) \times 4! + 3! = 1^4 + 5^3 + 6^5 + 4^6 \times 3^1.$$

$$20208 := (1! \times 2! + 5! + 6!) \times 4! = 1^6 \times 2^5 \times (5^4 + 6^1) + 4^2.$$

$$20209 := 1! + (2! + 5! + 6!) \times 4! = 1^6 + 2^5 \times (5^4 + 6^1) + 4^2.$$

$$20400 := (4! \times (1! + 3!) + 2!) \times 5! = 4^5 + 1^1 + (3^3 + 2^2) \times 5^4.$$

$$20496 := (1! + 3!) \times (2! + 5!) \times 4! = (1^4 + 3^5) \times (2^2 \times 5^1 + 4^3).$$

$$\begin{aligned} 21840 &:= (1! \times 4! + 2!) \times (5! + 6!) = 1^5 \times 4^2 \times (2^6 + 5^1 + 6^4). \\ &:= (3! + 4!) \times 6! + 2! \times 5! = 3^3 + (4^4 + 6^2) \times 2^6 + 5^5. \end{aligned}$$

$$21841 := 1! + (4! + 2!) \times (5! + 6!) = 1^5 + 4^2 \times (2^6 + 5^1 + 6^4).$$

$$21866 := (1! + 5! + 6!) \times (2! + 4!) = 1^2 + 5^6 + 6^1 \times (2^4 + 4^5).$$

$$21888 := 3! \times (6! + (5! + 2!) \times 4!) = (3^3 + 6^4 + 5^5) \times 2^2 + 4^6.$$

$$22320 := 1! \times 4! \times 3! \times 5! + 7! = 1^7 \times 4^4 + (3^3 + 5^5) \times 7^1.$$

$$22321 := 1! + 4! \times 3! \times 5! + 7! = 1^7 + 4^4 + (3^3 + 5^5) \times 7^1.$$

$$23040 := (1! \times 2! + 3!) \times 4! \times 5! = (1^5 + 2^3 + 3^2) \times 4^4 \times 5^1.$$

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

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

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

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

$$\begin{aligned} 23041 &:= (2! + 4! + 3!) \times 6! + 1! = 2^6 \times (4^1 \times 3^4 + 6^2) + 1^3. \\ &:= (4! + 2! + 3!) \times 6! + 1! = 4^4 \times (2^1 \times 3^3 + 6^2) + 1^6. \end{aligned}$$

$$23232 := (1! + 5!) \times 4! \times (3! + 2!) = (1^2 + 5^1 \times (4^3 + 3^4)) \times 2^5.$$

$$\begin{aligned} 23760 &:= (2! + 3! + 1! + 4!) \times 6! = (2^3 \times (3^4 + 1^6) + 4^1) \times 6^2. \\ &= 2^6 \times 3^3 + (1^1 + 4^2) \times 6^4. \\ &= 2^1 \times (3^6 \times 1^4 \times 4^2 + 6^3). \end{aligned}$$

$$\begin{aligned} 25200 &:= (5! + 6!) \times 1! \times 4! + 7! = 5^6 + 6^5 + (1^7 + 4^4) \times 7^1. \\ &:= (2! + 3! + 1!) \times 4! \times 5! = 2^5 \times 3^3 \times (1^4 + 4^1 + 5^2). \\ &:= (1! \times 2! \times 3! + 4!) \times 6! = 1^6 \times 2^3 \times 3^4 \times (4^1 + 6^2). \\ &= 1^3 \times 2^1 \times (3^6 \times 4^2 + 6^4). \end{aligned}$$

$$\begin{aligned} 25921 &:= 1! + (2! \times 3! + 4!) \times 6! = 1^3 + 2^1 \times (3^6 \times 4^2 + 6^4). \\ &= 1^6 + 2^3 \times 3^4 \times (4^1 + 6^2). \end{aligned}$$

$$25956 := (2! \times 3! + 4!) \times (1! + 6!) = 2^6 \times 3^4 \times (4^1 + 1^3) + 6^2.$$

$$\begin{aligned} 30240 &:= 6! \times ((2! + 1!) \times 3! + 4!) = (6^1 + 2^6) \times 1^4 \times 3^3 \times 4^2. \\ &:= 6! \times (3! \times (2! + 1!) + 4!) = (6^3 + 3^6) \times 2^1 \times 1^4 \times 4^2. \end{aligned}$$

$$30528 := (1! \times 7! + 2! \times 4!) \times 3! = 1^7 + 7^3 \times (2^2 + 4^1 + 3^4).$$

$$34560 := 1! \times 2! \times 3! \times 4! \times 5! = 1^5 \times 2^4 \times 3^3 \times 4^2 \times 5^1.$$

$$34561 := 1! + 2! \times 3! \times 4! \times 5! = 1^5 + 2^4 \times 3^3 \times 4^2 \times 5^1.$$

$$\begin{aligned} 34562 &:= (1! + 3! \times 5! \times 4!) \times 2! = (1^5 + 3^2 + 5^3) \times 4^4 + 2^1. \\ &:= (1! + 4! \times 5! \times 3!) \times 2! = (1^4 + 4^2 + 5^5) \times (3^1 + 2^3). \end{aligned}$$

$$34566 := 3! + 2! \times 1! \times 4! \times 6! = 3^3 \times (2^2 + 1^6) \times 4^4 + 6^1.$$

$$\begin{aligned} 34572 &:= (1! \times 2! + 6! + 7!) \times 3! = (1^6 + 2^7) \times (6^3 + 7^2 + 3^1). \\ &:= 2! \times (4! \times 5! + 1!) \times 3! = (2^1 + 4^4) \times (5^3 \times 1^5 + 3^2). \end{aligned}$$

$$34590 := (1! + 2! \times 6!) \times 4! + 3! = (1^6 + 2^2) \times (6^1 + 4^4 \times 3^3).$$

$$34848 := (1! + 5!) \times 3! \times 4! \times 2! = (1^2 + 5^1 \times 3^3) \times 4^4 + 2^5.$$

$$35616 := (1! + 3!) \times (7! + 2! \times 4!) = (1^2 \times 3^1 + 7^4) \times 2^3 + 4^7.$$

$$36000 := 2! \times 3! \times (1! + 4!) \times 5! = (2^5 + (3^3 + 1^2) \times 4^4) \times 5^1.$$

$$37440 := (2! \times 3! + 1!) \times 4! \times 5! = (2^5 \times 3^2) \times (1^4 + 4^1 + 5^3).$$

$$\begin{aligned}
38880 &:= (1! \times 6! \times 2! + 7!) \times 3! = 1^6 \times 6^3 \times (2^7 + 7^2 + 3^1). \\
&:= (1! \times 4! \times 2! + 3!) \times 6! = (1^3 \times 4^2 + 2^6) \times 3^4 \times 6^1. \\
&= (1^6 \times 4^1 + 2^4) \times 3^2 \times 6^3.
\end{aligned}$$

$$\begin{aligned}
38881 &:= 1! + (2! \times 4! + 3!) \times 6! = 1^3 + (2^6 + 4^2) \times 3^4 \times 6^1. \\
&= 1^6 + (2^4 + 4^1) \times 3^2 \times 6^3. \\
&:= 1! + 3! \times (7! + 2! \times 6!) = 1^6 + (3^1 + 7^2 + 2^7) \times 6^3.
\end{aligned}$$

$$\begin{aligned}
40320 &:= (1! + 3!) \times 2! \times 4! \times 5! = (1^1 + 3^2) \times 2^5 + 4^3 \times 5^4. \\
&= (1^2 + 3^3) \times (2^5 + 4^4) \times 5^1. \\
&:= (3! + (1! + 4!) \times 2!) \times 6! = 3^2 \times 1^1 \times 4^6 + 2^4 \times 6^3. \\
&= 3^2 \times 1^4 \times 4^3 \times (2^6 + 6^1).
\end{aligned}$$

$$40448 := 1! \times 2! + 3! + 5! + 8! = (1^5 + 2^8 + 3^1 \times 5^3) \times 8^2.$$

$$\begin{aligned}
40512 &:= (1! + 2!) \times 4! + 5! + 8! = 1^5 \times 2^8 + (4^1 + 5^4) \times 8^2. \\
&:= (2! \times 1! + 3!) \times (7! + 4!) = (2^1 \times 1^4 + 3^7 + 7^3) \times 4^2. \\
&= (2^7 \times 1^3 + 3^1 + 7^4) \times 4^2. \\
&= 2^4 \times (1^1 + 3^7 + 7^3) + 4^2.
\end{aligned}$$

$$\begin{aligned}
40513 &:= 1! + (2! + 3!) \times (7! + 4!) = 1^3 + (2^7 + 3^1 + 7^4) \times 4^2. \\
&= 1^4 + (2^1 + 3^7 + 7^3) \times 4^2.
\end{aligned}$$

$$40584 := 1! \times 4! + 5! \times 2! + 8! = (1^8 + 4^4 + 5^5) \times (2^2 + 8^1).$$

$$40752 := 4! \times 3! \times (2! + 1!) + 8! = 4^2 \times (3^3 + 2^8) \times (1^4 + 8^1).$$

$$41072 := 2! + 3! + 6! + 8! + 4! = 2^8 + 3^3 \times (6^4 + 8^2) + 4^6.$$

$$41280 := 1! \times 5! \times (3! + 2!) + 8! = (1^5 + 5^3 + 3^1) \times (2^8 + 8^2).$$

$$\begin{aligned}
42000 &:= (1! + 4!) \times (5! + 6!) \times 2! = 1^6 \times 4^5 \times (5^1 + 6^2) + 2^4. \\
&:= 5! \times 2! \times (1! + 3!) + 8! = 5^3 \times (2^5 + 1^8 + 3^2) \times 8^1. \\
&= 5^3 \times (2^8 + (1^5 + 3^2) \times 8^1).
\end{aligned}$$

$$42486 := 3! + 8! + (1! + 2!) \times 6! = (3^8 + (8^2 + 1^6) \times 2^3) \times 6^1.$$

$$\begin{aligned}
43200 &:= (1! \times 3! + 4!) \times 2! \times 6! = (1^6 + 3^2) \times (4^1 + 2^4) \times 6^3. \\
&:= (1! \times 3! + 4!) \times 6! \times 2! = 1^2 \times 3^3 \times (4^4 \times 6^1 + 2^6). \\
&:= 3! \times (7! + (1! + 2!) \times 6!) = (3^6 + 7^3 \times 1^1 + 2^7) \times 6^2. \\
&= (3^2 \times (7^1 + 1^6) + 2^7) \times 6^3.
\end{aligned}$$

$$43201 := 1! + 2! \times 6! \times (4! + 3!) = 1^2 + (2^6 + 6^1 \times 4^4) \times 3^3.$$

$$44688 := 3! \times 6! + 8! + 2! \times 4! = (3^6 + 6^4 + 8^3 + 2^8) \times 4^2.$$

$$46080 := 2! \times (7! + (1! + 4!) \times 6!) = (2^7 \times (7^1 + 1^6) + 4^4) \times 6^2.$$

$$:= 1! \times 5! \times 2! \times 4! + 8! = (1^8 + 5^2) \times 2^1 \times 4^4 + 8^5.$$

$$= (1^1 + 5^2) \times (2^8 + 4^4) + 8^5.$$

$$= (1^8 \times 5^1 + 2^2) \times (4^5 + 8^4).$$

$$46081 := 1! + 5! \times 2! \times 4! + 8! = 1^8 + (5^1 + 2^2) \times (4^5 + 8^4).$$

$$:= 1! + 6! \times (2! + 3!) + 8! = 1^6 + 6^2 \times (2^8 \times 3^1 + 8^3).$$

$$46800 := 6! \times (2! + 1! + 3!) + 8! = 6^6 + (2^3 + 1^8 + 3^2) \times 8^1.$$

$$= 6^6 + 2^2 \times (1^8 + 3^3 + 8^1).$$

$$48960 := 1! \times 8! + 2! \times 3! \times 6! = (1^2 \times 8^3 + 2^8) \times 3^1 + 6^6.$$

$$= 1^8 \times 8^1 \times 2^3 \times (3^6 + 6^2).$$

$$48961 := 1! + 8! + 2! \times 3! \times 6! = 1^2 + (8^3 + 2^8) \times 3^1 + 6^6.$$

$$= 1^8 + 8^1 \times 2^3 \times (3^6 + 6^2).$$

$$50407 := 1! + 7! \times 2! + 3! + 8! = 1^2 \times 7^1 \times (2^7 + 3^8 + 8^3).$$

$$50408 := (1! + 7!) \times 2! + 3! + 8! = 1^2 + 7^1 \times (2^7 + 3^8 + 8^3).$$

$$50414 := (7! + 1! + 3!) \times 2! + 8! = 7^1 \times (1^2 + 3^8 + 2^7 + 8^3).$$

$$51840 := (1! + 2!) \times 5! \times 3! \times 4! = 1^5 \times 2^3 \times 5^1 \times 3^4 \times 4^2.$$

$$= (1^5 + 2^2 + 5^1) \times 3^4 \times 4^3.$$

$$51846 := 3! + 4! \times (2! + 1!) \times 6! = (3^3 \times (4^4 + 2^6) + 1^2) \times 6^1.$$

$$56160 := ((1! + 2!) \times 4! + 3!) \times 6! = (1^6 + 2^4 \times 4^2 + 3^1) \times 6^3.$$

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

$$60720 := (1! \times 5! + 3! \times 7!) \times 2! = (1^5 + 5^1) \times (3^7 + 7^3) \times 2^2.$$

$$64800 := (1! + 2!) \times (4! + 3!) \times 6! = (1^2 \times 2^3) \times 4^1 \times (3^6 + 6^4).$$

$$= 1^3 \times 2^1 \times 4^2 \times (3^6 + 6^4).$$

$$:= 3! \times 7! + 2! \times 4! \times 6! = (3^7 + 7^2) \times 2^3 + 4^4 + 6^6.$$

$$\begin{aligned}
76320 &:= 6! \times 2! \times (1! + 4!) + 8! = 6^2 \times (2^6 + (1^8 + 4^4) \times 8^1). \\
80640 &:= (1! + 3!) \times (7! + 6!) \times 2! = (1^7 + 3^3 + 7^1) \times 6^2 \times 2^6. \\
80928 &:= (1! \times 8! + 4! + 5!) \times 2! = (1^8 + 8^1) \times (4^4 + 5^2) \times 2^5. \\
83520 &:= (1! \times 2!) \times 8! + 4! \times 5! = ((1^5 + 2^8) \times 8^2 + 4^4) \times 5^1. \\
83521 &:= 1! + 2! \times 8! + 4! \times 5! = 1^5 + (2^8 + 8^2) \times (4^4 + 5^1). \\
\\
88572 &:= (1! \times 3! + 6!) \times (5! + 2!) = (1^1 + 3^3) \times (6^2 + 5^5) + 2^6. \\
89298 &:= (2! + 5! + 1!) \times (3! + 6!) = (2^6 + 5^5) \times (1^2 + 3^3) + 6^1. \\
91442 &:= (1! + 3! + 5!) \times 6! + 2! = (1^2 + 3^6) \times 5^3 + 6^1 \times 2^5. \\
92160 &:= (1! + 2!) \times 4! \times 6! + 8! = (1^8 \times 2^6 + 4^4) \times 6^2 \times 8^1. \\
92880 &:= (3! + 6! + 4! \times 2!) \times 5! = 3^2 \times (6^4 + 4^5 + 2^6 \times 5^3). \\
\\
95040 &:= 3! \times ((2! + 1!) \times 7! + 6!) = 3^3 \times 2^6 \times 1^7 \times (7^2 + 6^1). \\
&= 3^6 \times 2^7 + (1^2 + 7^1) \times 6^3. \\
\\
103682 &:= 1! \times 3! \times 4! \times 6! + 2! = (1^2 + 3^4 \times 4^3 + 6^6) \times 2^1. \\
103683 &:= 1! + 2! + (4! \times 6!) \times 3! = (1^3 \times 2^6 + 4^2) \times 6^4 + 3^1. \\
103688 &:= (1! + 6! \times 4!) \times 3! + 2! = (1^1 + 6^4 + 4^2 \times 3^6) \times 2^3. \\
104544 &:= (1! + 5!) \times (3! \times 4! + 6!) = (1^6 + 5^3) \times 3^1 \times 4^4 + 6^5. \\
105120 &:= (1! \times 3! \times 4! + 2!) \times 6! = (1^4 + 3^6) \times (4^2 + 2^3) \times 6^1. \\
\\
105840 &:= (1! + 2! + 4! \times 3!) \times 6! = (1^1 \times 2^6 + 4^2) \times (3^3 + 6^4). \\
&= (1^4 + 2^3) \times 4^2 \times (3^6 + 6^1). \\
\\
112320 &:= (2! \times 1! + 4!) \times 3! \times 6! = 2^4 \times (1^6 + 4^3) \times 3^1 \times 6^2. \\
&= (2^6 + 1^1) \times (4^2 \times 3^3 + 6^4). \\
\\
116640 &:= (1! + 2! + 4!) \times 3! \times 6! = (1^1 + 2^3) \times (4^2 \times 3^6 + 6^4). \\
&:= (1! + 2! + 4!) \times 6! \times 3! = (1^3 \times 2^4 + 4^1 \times 6^2) \times 3^6. \\
&:= (2! + 1! + 4!) \times 3! \times 6! = 2^3 \times (1^6 + 4^1) \times 3^4 \times 6^2. \\
&= (2^3 + 1^1) \times (4^2 \times 3^6 + 6^4). \\
\\
121392 &:= (3! \times (1! + 2!) + 7!) \times 4! = 3^1 \times 1^3 \times (2^7 + 7^4) \times 4^2. \\
&:= (2! + 1!) \times (8! + 3! \times 4!) = (2^1 \times (1^4 + 8^3) + 3^8) \times 4^2. \\
\\
122040 &:= (1! + 2!) \times (5! + 8!) + 6! = (1^6 + 2^8 + 5^5 + 8^1) \times 6^2. \\
122401 &:= 1! + 6! \times 2! + 4! \times 7! = 1^4 \times 6^2 \times (2^7 + 4^1) + 7^6. \\
122402 &:= (1! + 6!) \times 2! + 4! \times 7! = 1^4 + 6^2 \times (2^7 + 4^1) + 7^6. \\
123840 &:= 4! \times 5! + (1! + 2!) \times 8! = (4^1 + 5^2 + 1^8) \times (2^5 + 8^4). \\
131040 &:= (1! \times 3! + 5!) \times 6! + 8! = 1^8 + 3^3 \times 5^5 + 6^6 + 8^1.
\end{aligned}$$

$$\begin{aligned} 131072 &:= (2! + 4!) \times (1! + 7!) + 3! = 2^7 \times 4^3 \times 1^4 \times (7^1 + 3^2). \\ &= 2^3 \times 4^4 \times (1^7 + 7^1 \times 3^2). \end{aligned}$$

$$131222 := (1! + 7! + 3!) \times (2! + 4!) = (1^4 + 7^2) \times 3^1 + 2^3 \times 4^7.$$

$$135360 := (2! + 4!) \times 7! + 3! \times 6! = (2^2 + 4^7) + 7^6 + 3^3 + 6^4.$$

$$\begin{aligned} 138240 &:= (1! \times 3! + 2!) \times 4! \times 6! = (1^6 + 3^2) \times 2^4 \times 4^1 \times 6^3. \\ &:= (4! \times (1! + 2!) + 5!) \times 6! = 4^4 \times (1^5 + 2^6 + 5^2) \times 6^1. \end{aligned}$$

$$138528 := (2! \times 3! + 7! + 6!) \times 4! = 2^7 \times (3^6 + 7^3) + 6^4 + 4^2.$$

$$\begin{aligned} 141120 &:= 4! \times (3! + 1!) \times (5! + 6!) = 4^4 \times (3^5 + 1^1 + 5^3) + 6^6. \\ &:= 4! \times (3! + 1!) \times (6! + 5!) = 4^5 + 3^1 \times (1^4 + 6^6) + 5^3. \end{aligned}$$

$$\begin{aligned} 155520 &:= (1! + 3! + 2!) \times 4! \times 6! = (1^6 + 3^2) \times (2^3 + 4^1) \times 6^4. \\ &:= (1! + 2! + 3!) \times 4! \times 6! = (1^6 + 2^2) \times 3^4 \times 4^3 \times 6^1. \\ &= (1^2 + 2^1) \times (3^4 \times 4^3 + 6^6). \end{aligned}$$

$$161280 := (2! + 3!) \times 4! \times (5! + 6!) = (2^4 + 3^5 + 4^6 + 5^3) \times 6^2.$$

$$172800 := ((2! + 1!) \times 6! + 7!) \times 4! = 2^7 \times (1^6 + 6^4 + 7^2 + 4^1).$$

$$174252 := ((1! + 5!) \times 6! + 3!) \times 2! = 1^5 + (5^6 + 6^3) \times (3^2 + 2^1).$$

$$175692 := (1! + 5!) \times (6! + 3!) \times 2! = 1^5 + (5^2 + 6^3) \times 3^6 + 2^1.$$

$$180048 := (1! + 5!) \times (6! + 4!) \times 2! = (1^6 + (5^4 \times 6^1)) \times (4^2 + 2^5).$$

$$\begin{aligned} 181440 &:= (1! \times 2! \times 3! + 4!) \times 7! = (1^7 + 2^2) \times 3^4 \times 4^3 \times 7^1. \\ &:= (1! \times 5! + 3!) \times 6! \times 2! = (1^2 + 5^1) \times (3^6 + 6^3) \times 2^5. \end{aligned}$$

$$190086 := 3! + (5! \times 2! + 4!) \times 6! = 3^2 + 5^3 + 2^4 \times (4^6 + 6^5).$$

$$\begin{aligned} 207360 &:= 1! \times 4! \times 2! \times 6! \times 3! = (1^2 \times 4^4 + 2^6) \times 6^3 \times 3^1. \\ &:= 1! \times 2! \times 4! \times 6! \times 3! = (1^2 \times 2^6 + 4^4) \times 6^3 \times 3^1. \\ &= (1^6 + 2^2) \times 4^4 \times 6^1 \times 3^3. \\ &= 1^3 \times 2^6 \times (4^1 + 6^2) \times 3^4. \end{aligned}$$

$$\begin{aligned} 207361 &:= 1! + 2! \times 4! \times 6! \times 3! = 1^2 + (2^6 + 4^4) \times 6^3 \times 3^1. \\ &:= 1! + 2! \times 3! \times 4! \times 6! = 1^1 + 2^2 \times (3^4 \times 4^3 + 6^6). \\ &= 1^3 + 2^6 \times 3^4 \times (4^1 + 6^2). \end{aligned}$$

$$207480 := 2! \times 3! \times 6! \times 4! + 5! = 2^4 + 3^6 \times 6^3 + 4^2 \times 5^5.$$

$$208800 := 2! \times (1! + 5! + 4!) \times 6! = (2^6 + 1^1 + 5^2) \times (4^5 + 6^4).$$

$$\begin{aligned} 224640 &:= (2! \times 3! + 1!) \times 4! \times 6! = 2^6 \times 3^2 \times (1^4 + 4^3) \times 6^1. \\ &= 2^2 \times (3^1 + 1^6 + 4^4) \times 6^3. \end{aligned}$$

$$241920 := (1! + 3!) \times 6! \times 2! \times 4! = (1^1 \times 3^6 + 6^3) \times 2^4 \times 4^2.$$

$$247680 := 6! \times (4! + 5!) \times 2! + 8! = 6^6 + 4^5 + 5^4 \times (2^8 + 8^2).$$

$$259206 := 3! + 5! \times (2! + 1!) \times 6! = (3^3 \times 5^2 \times 2^6 + 1^5) \times 6^1.$$

$$263520 := ((1! + 2!) \times 5! + 3!) \times 6! = (1^6 + 2^2 + 5^1 \times 3^5) \times 6^3.$$

$$283680 := 6! \times 2! + (1! + 3!) \times 8! = 6^2 \times (2^8 \times 1^3 + 3^6) \times 8^1.$$

$$307440 := (1! + (3! + 4!)) \times 2! \times 7! = (1^2 + 3^3) \times 4^1 + 2^7 \times 7^4.$$

$$311040 := (3! + 2! \times 4!) \times (7! + 6!) = 3^4 \times (2^7 + 4^3 \times 7^2) + 6^6.$$

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

$$\begin{aligned} 349920 &:= ((1! + 4!) \times 6! + 8!) \times 3! = (1^8 \times 4^4 + 6^3 + 8^1) \times 3^6. \\ &= (1^8 \times 4^6 + 6^3 + 8^1) \times 3^4. \end{aligned}$$

$$350640 := 3! \times (4! \times 6! + 8!) + 7! = 3^6 + 4^8 + 6^7 + 8^4 + 7^3.$$

$$363008 := 2! \times 1! + 3! + 5! + 9! = 2^9 \times (1^5 + 3^3) \times 5^2 + 9^1.$$

$$363744 := (1! \times 4! + 5!) \times 3! + 9! = 1^9 \times 4^1 \times (5^5 \times 3^3 + 9^4).$$

$$363745 := 1! + (4! + 5!) \times 3! + 9! = 1^9 + 4^1 \times (5^5 \times 3^3 + 9^4).$$

$$364446 := 2! \times 6! + 3! + 5! + 9! = 2^9 \times 6^3 + 3^6 + 5^5 \times 9^2.$$

$$367920 := (1! + 3! + 2!) \times 8! + 7! = ((1^7 + 3^8) \times 2^3 + 8^2) \times 7^1.$$

$$367956 := 2! \times 3! + 4! + 9! + 7! = 2^7 + 3^9 + (4^3 + 9^2) \times 7^4.$$

$$466560 := 1! \times 3! \times 4! \times 6! + 9! = (1^9 \times 3^4 \times 4^3 + 6^6) \times 9^1.$$

$$466561 := 3! \times 4! \times 6! + 9! + 1! = (3^4 \times 4^3 + 6^6) \times 9^1 + 1^9.$$

$$:= 1! + 3! \times 4! \times 6! + 9! = 1^9 + (3^4 \times 4^3 + 6^6) \times 9^1.$$

$$466566 := (1! + 6! \times 4!) \times 3! + 9! = 1^9 \times 6^1 + 4^3 \times (3^6 + 9^4).$$

$$492480 := (1! \times 8! + 6!) \times 3! \times 2! = (1^8 + 8^3) \times (6^1 + 3^2) \times 2^6.$$

$$518403 := 1! + 2! + 5! \times 6! \times 3! = (1^6 + 2^5 \times 5^2 \times 6^3) \times 3^1.$$

$$529968 := (2! + 5!) \times (3! \times 6! + 4!) = 2^5 + (5^6 + 3^4 \times 6^3) \times 4^2.$$

$$540000 := (4! + 3! \times (1! + 5!)) \times 6! = (4^4 + 3^5 + 1^6) \times 5^1 \times 6^3.$$

$$604928 := (1! + 7!) \times 5! + 3! + 2! = (1^5 + 7^1 \times 5^2 \times 3^3) \times 2^7.$$

$$626400 := (1! + 4! + 5!) \times 3! \times 6! = (1^6 + 4^5 + 5^4 \times 3^1) \times 6^3.$$

$$691200 := (1! \times 3! + 2!) \times 5! \times 6! = (1^5 + 3^2) \times 2^6 \times 5^1 \times 6^3.$$

$$691200 := (1! \times 3! + 2!) \times 5! \times 6! = (1^6 + 3^1) \times 2^5 \times 5^2 \times 6^3.$$

$$725760 := (1! + 2! + 3!) \times 8! + 9! = 1^9 \times 2^8 \times (3^3 + 8^1) \times 9^2.$$

$$777600 := 5! \times (2! + 3! + 1!) \times 6! = ((5^2 + 2^3) \times 3^1 + 1^6) \times 6^5.$$

$$846720 := 1! \times 4! \times 7! + 9! \times 2! = (1^9 + 4^1 + 7^2 + 9^4) \times 2^7.$$

$$887040 := 8! \times (1! + 2! \times 3!) + 9! = 8^2 \times ((1^8 + 2^9) \times 3^3 + 9^1).$$

$$967680 := (1! \times 3! + 2!) \times 7! \times 4! = (1^2 + 3^3) \times (2^7 + 7^1) \times 4^4.$$

$$1036800 := 1! \times 2! \times 3! \times 5! \times 6! = 1^5 \times 2^6 \times 3^1 \times 5^2 \times 6^3.$$

$$1036801 := 1! + 2! \times 3! \times 5! \times 6! = 1^5 + 2^6 \times 3^1 \times 5^2 \times 6^3.$$

$$1179360 := (1! + 2!) \times (7! \times 3! + 9!) = (1^3 + 2^9 + 7^1) \times (3^7 + 9^2).$$

$$1330560 := (1! \times 4! + 2! \times 5!) \times 7! = (1^5 + 4^2) \times (2^1 + 5^7) + 7^4.$$

$$1468800 := 4! \times (2! \times 7! \times 3! + 6!) = (4^6 + 2^3 \times (7^4 + 3^7)) \times 6^2.$$

$$1555200 := (1! + 2!) \times 3! \times 5! \times 6! = (1^2 + 2^6 + 3^3 \times 5^1) \times 6^5.$$

$$1942560 := 2! \times ((5! + 8!) \times 4! + 6!) = 2^5 \times (5^2 + 8^4 + 4^6) + 6^8.$$

$$2073606 := 1! \times 5! \times 4! \times 6! + 3! = 1^3 + 5^1 + 4^5 \times (6^4 + 3^6).$$

$$2073726 := 3! + (6! \times 4! + 1!) \times 5! = (3^6 + 6^4) \times 4^5 + 1^1 + 5^3.$$

$$2080080 := (4! \times (2! + 6!) + 3!) \times 5! = (4^3 + 2^4) \times (6^5 + 3^6 \times 5^2).$$

$$2177406 := (1! + 4! \times 6!) \times (3! + 5!) = 1^1 + 4^4 \times (6^5 + 3^6) + 5^3.$$

$$2764800 := (3! + 4! + 2!) \times 6! \times 5! = (3^3 \times 4^5 + 2^6 \times 6^4) \times 5^2.$$

$$3631080 := 5! + (1! + 2! + 7!) \times 6! = (5^1 + 1^6) \times (2^7 + 7^5 \times 6^2).$$

$$3732480 := (1! \times 7! + 3! \times 4!) \times 6! = (1^3 + 7^1) \times (3^6 \times 4^4 + 6^7).$$

$$3870720 := (4! \times 2! \times 1! + 6!) \times 7! = 4^6 \times (2^7 \times (1^4 + 6^1) + 7^2).$$

$$4147200 := 1! \times 2! \times 4! \times 5! \times 6! = 1^6 \times 2^5 \times 4^1 \times 5^2 \times 6^4.$$

$$4147201 := 1! + 2! \times 4! \times 5! \times 6! = 1^6 + 2^5 \times 4^1 \times 5^2 \times 6^4.$$

$$4838406 := (1! + (8! + 9!) \times 2!) \times 3! = 1^9 + (8^1 + 9^3) \times (2^2 + 3^8).$$

$$5443200 := (2! + 3! + 1!) \times 5! \times 7! = (2^7 \times 3^5) \times 1^3 \times 5^2 \times 7^1.$$

$$= 2^7 \times 3^5 \times (1^1 + 5^3 + 7^2).$$

$$7879680 := 4! \times (2! + 3!) \times (8! + 6!) = (4^6 + 2^8 + 3^3 \times 8^2) \times 6^4.$$

$$12441600 := 1! \times 5! \times 3! \times 6! \times 4! = (1^3 + 5^1) \times (3^6 + 6^4) \times 4^5.$$

$$12614400 := (3! \times 4! + 2!) \times 6! \times 5! = (3^3 \times 4^4 + 2^6 \times 6^5) \times 5^2.$$

$$17418240 := (1! + 2!) \times 8! \times (5! + 4!) = (1^1 + 2^8 \times 8^2 + 5^4 \times 4^5).$$

$$17625600 := 4! \times 2! \times (3! \times 6! + 9!) = (4^6 + 2^9 \times 3^2) \times (6^4 + 9^3).$$

$$24883200 := 2! \times 3! \times 4! \times 6! \times 5! = 2^4 \times (3^5 \times 4^3 + 6^6) \times 5^2.$$

$$29393280 := (1! + 2! + 3! + 6!) \times 8! = 1^3 \times 2^6 \times 3^8 \times (6^1 + 8^2).$$

$$32659200 := (2! + 3! + 1!) \times 6! \times 7! = 2^7 \times 3^6 \times (1^2 + 6^1 + 7^3).$$

$$\begin{aligned}
33868800 &:= (2! + 3!) \times 7! \times (5! + 6!) = (2^6 \times 3^7 + 7^5 + 5^2) \times 6^3. \\
34836480 &:= 1! \times 8! \times (6! + 3! \times 4!) = ((1^4 + 8^1) \times 6^3 + 3^8) \times 4^6. \\
35320320 &:= 3! \times (2! + 4! + 5!) \times 8! = (3^4 \times 2^2 + 4^8 + 5^5) \times 8^3. \\
39674880 &:= ((2! + 3!) \times 5! + 4!) \times 8! = (2^4 + (3^8 + 5^5) \times 4^3) \times 8^2. \\
59097600 &:= 2! \times 6! \times (8! + 3! \times 5!) = (2^8 \times 6^5 + 8^3 \times 3^6) \times 5^2. \\
88179840 &:= (1! + 2!) \times (6! \times 8! + 9!) = 1^8 \times 2^1 \times (6^9 + 8^2 \times 9^6). \\
91445760 &:= 1! \times 9! \times (5! + 3!) \times 2! = (1^2 + 9^3 + 5^1) \times 3^5 \times 2^9. \\
97977600 &:= (4! + 2! \times 5! + 3!) \times 9! = (4^3 + 2^9) \times 5^2 \times (3^5 + 9^4). \\
104509440 &:= (5! + 4! \times (1! + 3!)) \times 9! = 5^1 \times 4^5 \times 1^4 \times (3^9 + 9^3). \\
272160000 &:= (1! \times 3! + 6! + 4!) \times 9! = 1^6 \times 3^3 \times (6^9 + 4^4 \times 9^1). \\
272160001 &:= 1! + (3! + 6! + 4!) \times 9! = 1^6 + 3^3 \times (6^9 + 4^4 \times 9^1). \\
609638400 &:= (5! \times (2! + 3!) + 6!) \times 9! = 5^2 \times 2^9 \times (3^5 + 6^6 + 9^3). \\
1045094400 &:= 2! \times 9! \times (3! \times 5! + 6!) = (2^5 \times 9^2 + 3^9 + 5^3) \times 6^6. \\
8360755200 &:= (2! + 3!) \times 9! \times 4! \times 5! = 2^4 \times (3^9 + 9^3) \times 4^5 \times 5^2. \\
20901888000 &:= 1! \times 6! \times 3! \times 5! \times 8! = (1^8 + 6^1) \times 3^6 \times 5^3 \times 8^5. \\
27869184000 &:= (2! + 3!) \times 6! \times 5! \times 8! = 2^8 \times (3^6 + 6^5) \times 5^2 \times 8^3. \\
32659200000 &:= 5! \times (6! + 4! + 3!) \times 9! = 5^5 \times (6^9 + 4^4 \times (3^6 + 9^3)).
\end{aligned}$$

2.2 Positive and Negative Signs Expressions

The expression (4) give results for positive and negative signs. The subsections below are numbers with permutable flexible powers of same digits as of bases with positive and negative signs.

2.2.1 Up to Three Terms Expressions

$$\begin{aligned}
1 &:= -1! + 2! = -1^2 + 2^1. & 10 &:= (-1! + 3!) \times 2! = -1^2 + 3^1 + 2^3. \\
3 &:= 1! + 2! = -1^1 + 2^2. & &= -1^3 + 3^2 + 2^1. \\
4 &:= -1! \times 2! + 3! = -1^2 + 2^3 - 3^1. & 11 &:= 2! \times 3! - 1! = 2^1 + 3^2 \times 1^3. \\
5 &:= 1! - 2! + 3! = 1^2 \times 2^3 - 3^1. & &= 2^2 \times 3^1 - 1^3. \\
6 &:= (-1! + 2!) \times 3! = 1^2 + 2^3 - 3^1. & &= 2^3 + 3^1 \times 1^2. \\
&= -1^3 + 2^2 + 3^1. & 17 &:= -1! - 3! + 4! = 1^1 \times 3^4 - 4^3. \\
&= -1^3 - 2^1 + 3^2. & 18 &:= -1! \times 3! + 4! = 1^1 + 3^4 - 4^3. \\
7 &:= -1! + 2! + 3! = -1^3 \times 2^1 + 3^2. & 21 &:= -1! - 2! + 4! = 1^2 + 2^4 + 4^1. \\
&= 1^3 \times 2^2 + 3^1. & 30 &:= 1! \times 3! + 4! = -1^4 + 3^3 + 4^1. \\
8 &:= 1! \times 2! + 3! = 1^3 - 2^1 + 3^2. & 48 &:= 1! \times 4! \times 2! = (-1^2 + 4^1) \times 2^4. \\
9 &:= 1! + 2! + 3! = (-1^3 + 2^1) \times 3^2. & 127 &:= 1! + 3! + 5! = -1^5 + 3^1 + 5^3. \\
&= (-1^3 + 2^2) \times 3^1. & 138 &:= -3! + 4! + 5! = -3^5 + 4^4 + 5^3. \\
& & 144 &:= 1! \times 3! \times 4! = -1^1 + 3^4 + 4^3.
\end{aligned}$$

2.2.2 Four Terms Expressions

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

$$\begin{aligned}
 10 &:= 4! - 2! \times (1! + 3!) = -4^1 \times 2^2 - 1^4 + 3^3. \\
 &= 4^1 + 2^4 - 1^3 - 3^2. \\
 &= 4^2 - 2^3 - 1^4 + 3^1. \\
 &= -4^2 - 2^1 + 1^4 + 3^3.
 \end{aligned}$$

$$\begin{aligned}
 11 &:= (4! - 1!) - 2! \times 3! = 4^1 \times 1^3 + 2^4 - 3^2. \\
 &= -4^1 \times 1^4 \times 2^2 + 3^3. \\
 &= 4^2 \times 1^4 - 2^3 + 3^1. \\
 &= 4^2 \times (1^4 - 2^1) + 3^3.
 \end{aligned}$$

$$\begin{aligned}
 12 &:= -1! \times 2! \times 3! + 4! = -1^1 - 2^2 + 3^4 - 4^3. \\
 &= 1^3 + 2^4 - 3^2 + 4^1. \\
 &= -1^4 + 2^1 + 3^3 - 4^2. \\
 &= 1^4 - 2^3 + 3^1 + 4^2. \\
 &:= (2! + 5!) \times 3! - 6! = 2^6 - 5^2 - 3^5 + 6^3.
 \end{aligned}$$

$$\begin{aligned}
 13 &:= 1! - 2! \times 3! + 4! = -1^1 \times 2^2 + 3^4 - 4^3. \\
 &= -(1^2 + 2^4) \times 3^1 + 4^3. \\
 &= 1^4 \times 2^1 + 3^3 - 4^2. \\
 &= 1^4 \times 2^3 + 3^2 - 4^1.
 \end{aligned}$$

$$\begin{aligned}
 14 &:= (1! - 3!) \times 2! + 4! = 1^1 + 3^4 - 2^2 - 4^3. \\
 &= -1^2 + 3^3 - 2^4 + 4^1. \\
 &= -1^2 + 3^4 - 2^1 - 4^3. \\
 &= 1^4 + 3^2 + 2^3 - 4^1.
 \end{aligned}$$

$$\begin{aligned}
 15 &:= (4! - 1!) - 2! - 3! = -(4^1 - 1^4) \times 2^2 + 3^3. \\
 &= (4^1 - 1^4) \times 2^3 - 3^2. \\
 &= 4^1 \times 1^2 - 2^4 + 3^3. \\
 &= -4^3 \times 1^2 - 2^1 + 3^4.
 \end{aligned}$$

$$\begin{aligned}
 16 &:= -1! \times 3! + 4! - 2! = 1^2 + 3^3 + 4^1 - 2^4. \\
 &= 1^2 + 3^4 - 4^3 - 2^1. \\
 &= (-1^3 + 3^1) \times 4^2 - 2^4. \\
 &= (-1^3 + 3^2) \times 4^1 - 2^4.
 \end{aligned}$$

$$\begin{aligned}
 17 &:= 1! - 2! - 3! + 4! = 1^2 - 2^4 \times 3^1 + 4^3. \\
 &= (-1^2 + 2^1) \times 3^4 - 4^3.
 \end{aligned}$$

$$\begin{aligned}
 18 &:= (1! - 2!) \times 3! + 4! = -1^2 + 2^1 + 3^4 - 4^3. \\
 &= -1^4 - 2^2 + 3^3 - 4^1.
 \end{aligned}$$

$$18 := (4! - 1!) \times 3! - 5! = 4^4 \times 1^3 - 3^5 + 5^1.$$

$$\begin{aligned}
 19 &:= -1! + 2! - 3! + 4! = (1^2 - 2^4) \times 3^1 + 4^3. \\
 &= 1^2 \times 2^1 + 3^4 - 4^3. \\
 &= -1^4 \times 2^2 + 3^3 - 4^1. \\
 &= -1^3 - 2^4 + 3^2 \times 4^1.
 \end{aligned}$$

$$\begin{aligned}
 20 &:= 1! \times 2! - 3! + 4! = -1^1 + 2^2 + 3^4 - 4^3. \\
 &= 1^2 + 2^1 + 3^4 - 4^3. \\
 &= 1^4 - 2^2 + 3^3 - 4^1. \\
 &= -1^4 + 2^3 + 3^2 + 4^1. \\
 &= -1^4 + 2^3 - 3^1 + 4^2. \\
 &= -1^3 \times 2^4 + 3^2 \times 4^1.
 \end{aligned}$$

$$\begin{aligned}
 21 &:= 1! + 2! - 3! + 4! = 1^1 \times 2^2 + 3^4 - 4^3. \\
 &= 1^3 \times 2^4 + 3^2 - 4^1. \\
 &= 1^4 \times 2^3 - 3^1 + 4^2. \\
 &= 1^4 \times 2^3 + 3^2 + 4^1. \\
 &= -1^4 + 2^1 \times (3^3 - 4^2).
 \end{aligned}$$

$$23 := -1! + 3! \times 4! - 5! = 1^5 + 3^4 - 4^3 + 5^1.$$

$$24 := (2! - 3!) \times 4! + 5! = 2^5 + 3^4 - 4^3 - 5^2.$$

$$\begin{aligned}
 27 &:= -1! - 2! + 3! + 4! = 1^1 \times 2^4 + 3^3 - 4^2. \\
 &= 1^4 \times 2^2 + 3^3 - 4^1. \\
 &= 1^4 \times 2^3 + 3^1 + 4^2. \\
 &= -1^4 - 2^3 + 3^2 \times 4^1. \\
 &= -1^3 + (2^4 - 3^2) \times 4^1.
 \end{aligned}$$

$$\begin{aligned}
28 &:= -1! \times 2! + 3! + 4! = 1^1 + 2^4 + 3^3 - 4^2. \\
&= -1^3 + 2^4 - 3^1 + 4^2. \\
&= (1^3 \times 2^4 - 3^2) \times 4^1. \\
&= 1^4 + 2^2 + 3^3 - 4^1. \\
&= 1^4 + 2^3 + 3^1 + 4^2. \\
&= -1^4 \times 2^3 + 3^2 \times 4^1.
\end{aligned}$$

$$\begin{aligned}
29 &:= 1! - 2! + 3! + 4! = 1^3 \times 2^4 - 3^1 + 4^2. \\
&= 1^3 \times 2^4 + 3^2 + 4^1. \\
&= 1^4 - 2^3 + 3^2 \times 4^1.
\end{aligned}$$

$$\begin{aligned}
30 &:= (-1! + 2!) \times 3! + 4! = 1^3 + 2^4 - 3^1 + 4^2. \\
&= 1^3 + 2^4 + 3^2 + 4^1.
\end{aligned}$$

$$\begin{aligned}
31 &:= 2! - 1! + 4! + 3! = (2^3 - 1^1) \times 4^2 - 3^4. \\
&= 2^3 \times (1^4 + 4^1) - 3^2. \\
&= -2^4 - 1^3 + 4^2 \times 3^1.
\end{aligned}$$

$$\begin{aligned}
32 &:= 1! \times 3! + 2! + 4! = (1^2 - 3^1) \times 2^4 + 4^3. \\
&= (1^3 - 3^2 + 2^4) \times 4^1. \\
&= 1^3 \times 3^1 \times 2^4 - 4^2. \\
&= (-1^4 + 3^2) \times (2^3 - 4^1). \\
&= (1^4 + 3^1) \times (-2^3 + 4^2).
\end{aligned}$$

$$\begin{aligned}
33 &:= 1! + 2! + 4! + 3! = (-1^2 + 2^4) \times 4^1 - 3^3. \\
&= -(1^3 + 2^1) \times 4^2 + 3^4. \\
&= 1^3 - 2^4 + 4^2 \times 3^1. \\
&= (1^4 + 2^1) \times (-4^2 + 3^3). \\
&= -1^2 + 2^1 \times (-4^3 + 3^4).
\end{aligned}$$

$$\begin{aligned}
34 &:= (-1! - 3! + 4!) \times 2! = (1^2 \times 3^4 - 4^3) \times 2^1. \\
&= -1^3 + 3^1 + 4^2 + 2^4. \\
&= -1^4 + 3^3 + 4^1 + 2^2.
\end{aligned}$$

$$\begin{aligned}
35 &:= -1! + 4! + 3! \times 2! = (1^3 + 4^2) \times 3^1 - 2^4. \\
&= (-1^4 + 4^1) \times 3^2 + 2^3. \\
&= 1^4 \times 4^1 + 3^3 + 2^2. \\
&= (1^3 + 4^1) \times (-3^2 + 2^4). \\
&= 1^2 - (4^3 - 3^4) \times 2^1.
\end{aligned}$$

$$\begin{aligned}
36 &:= (-1! \times 3! + 4!) \times 2! = (1^2 + 3^4 - 4^3) \times 2^1. \\
&= 1^3 + 3^1 + 4^2 + 2^4. \\
&= 1^4 + 3^3 + 4^1 + 2^2. \\
&= -1^2 - 3^3 + 4^1 \times 2^4. \\
&= (1^4 \times 3^2) \times (-4^1 + 2^3).
\end{aligned}$$

$$\begin{aligned}
37 &:= 3! \times 2! + 1! + 4! = 3^3 \times 2^1 - 1^4 - 4^2. \\
&= 3^1 \times (2^3 - 1^4) + 4^2. \\
&= -3^2 \times (2^1 + 1^4) + 4^3. \\
&= 3^2 + (2^3 - 1^4) \times 4^1. \\
&= -3^3 + 2^4 \times 1^2 \times 4^1.
\end{aligned}$$

$$\begin{aligned}
38 &:= (1! + 3!) \times 2! + 4! = -1^1 - 3^2 - 2^4 + 4^3. \\
&= -1^2 + 3^3 + 2^4 - 4^1. \\
&= 1^4 \times 3^3 \times 2^1 - 4^2.
\end{aligned}$$

$$\begin{aligned}
40 &:= (-1! + 4!) \times 2! - 3! = 1^1 + 4^3 - 2^4 - 3^2. \\
&= 1^2 - 4^1 + 2^4 + 3^3. \\
&= -1^4 + 4^2 - 2^1 + 3^3. \\
&= -1^4 + 4^1 \times 2^3 + 3^2. \\
&= 1^4 \times 4^2 + 2^3 \times 3^1.
\end{aligned}$$

$$\begin{aligned}
41 &:= -1! + 2! \times 4! - 3! = (1^2 + 2^4) \times 4^1 - 3^3. \\
&= -1^4 \times 2^1 + 4^2 + 3^3. \\
&= 1^4 \times 2^3 \times 4^1 + 3^2. \\
&= 1^4 - 2^3 + 4^2 \times 3^1.
\end{aligned}$$

$$\begin{aligned}
42 &:= 1! \times 2! \times 4! - 3! = 1^4 - 2^1 + 4^2 + 3^3. \\
&= -1^4 + 2^2 \times 4^1 + 3^3. \\
&= 1^4 + 2^3 \times 4^1 + 3^2.
\end{aligned}$$

$$\begin{aligned}
43 &:= 1! + 2! \times 4! - 3! = (-1^4 + 2^1) \times 4^2 + 3^3. \\
&= 1^4 \times 2^2 \times 4^1 + 3^3. \\
&= -1^4 + 2^3 + 4^1 \times 3^2.
\end{aligned}$$

$$\begin{aligned}
44 &:= (1! + 4!) \times 2! - 3! = -1^2 + 4^3 - 2^4 - 3^1. \\
&= -1^4 + 4^2 + 2^1 + 3^3. \\
&= 1^2 \times 4^1 \times (-2^4 + 3^3). \\
&= 1^4 + 4^1 \times 2^2 + 3^3.
\end{aligned}$$

$$\begin{aligned}
48 &:= -(1! + 2!) \times 4! + 5! = -1^4 \times 2^5 + 4^2 \times 5^1. \\
&:= (1! + 3!) \times 4! - 5! = -1^5 \times 3^4 + 4^1 + 5^3.
\end{aligned}$$

$$\begin{aligned}
52 &:= (4! - 1!) \times 2! + 3! = 4^3 - 1^4 - 2^1 - 3^2. \\
&= 4^3 + 1^2 - 2^4 + 3^1. \\
&= 4^3 \times 1^4 - 2^2 \times 3^1.
\end{aligned}$$

$$\begin{aligned}
53 &:= 2! \times 4! - 1! + 3! = (-2^1 + 4^3) \times 1^4 - 3^2. \\
&= 2^4 \times (4^1 + 1^2) - 3^3. \\
&= 2^3 + (4^1 + 1^4) \times 3^2. \\
&= 2^3 + (4^2 - 1^4) \times 3^1.
\end{aligned}$$

$$\begin{aligned}
54 &:= 1! \times 4! \times 2! + 3! = 1^4 + 4^3 - 2^1 - 3^2. \\
&= -1^3 + 4^1 \times 2^4 - 3^2.
\end{aligned}$$

$$\begin{aligned}
55 &:= 1! + 4! \times 2! + 3! = (1^1 + 4^2) \times 2^3 - 3^4. \\
&= (1^3 \times 4^1) \times 2^4 - 3^2. \\
&= (1^2 + 4^1) \times (-2^4 + 3^3).
\end{aligned}$$

$$\begin{aligned}
56 &:= (1! + 4!) \times 2! + 3! = -1^1 + 4^3 - 2^4 + 3^2. \\
&= -1^1 - 4^2 - 2^3 + 3^4. \\
&= -1^4 + 4^3 + 2^1 - 3^2. \\
&= -1^4 + 4^3 - 2^2 - 3^1. \\
&= 1^3 + 4^1 \times 2^4 - 3^2.
\end{aligned}$$

$$\begin{aligned}
58 &:= (3! - 1! + 4!) \times 2! = -3^1 + 1^4 + 4^3 - 2^2. \\
&= -3^2 + 1^4 + 4^3 + 2^1. \\
&= 3^2 + 1^1 + 4^3 - 2^4. \\
&= 3^3 - 1^1 + 4^2 + 2^4. \\
&= 3^4 + 1^1 - 4^2 - 2^3. \\
&= 3^3 - 1^4 + 4^2 \times 2^1.
\end{aligned}$$

$$\begin{aligned}
59 &:= (3! + 4!) \times 2! - 1! = 3^3 + 4^2 + 2^4 \times 1^1. \\
&= 3^3 + 4^2 \times 2^1 \times 1^4. \\
&= -3^2 + 4^1 \times (2^4 + 1^3).
\end{aligned}$$

$$\begin{aligned}
60 &:= 2! \times 1! \times (3! + 4!) = 2^3 \times (-1^4 + 3^2) - 4^1. \\
&:= -2! \times (3! + 4!) + 5! = 2^5 - 3^4 - 4^2 + 5^3.
\end{aligned}$$

$$\begin{aligned}
61 &:= 1! + 2! \times (3! + 4!) = (-1^3 + 2^4) \times 3^1 + 4^2. \\
&:= 1! + 2! \times (4! + 3!) = -(1^3 + 2^2) \times 4^1 + 3^4.
\end{aligned}$$

$$\begin{aligned}
62 &:= (1! + 3! + 4!) \times 2! = -1^3 + 3^4 - 4^2 - 2^1. \\
&= -1^4 + 3^1 + 4^3 - 2^2.
\end{aligned}$$

$$\begin{aligned}
66 &:= (1! + 2!) \times 4! - 3! = -1^3 + 2^1 - 4^2 + 3^4. \\
&= 1^4 + 2^2 + 4^3 - 3^1. \\
&= 1^3 - 2^2 \times 4^1 + 3^4.
\end{aligned}$$

$$71 := -1! - 4! \times 2! + 5! = (-1^4 + 4^1) \times 2^5 - 5^2.$$

$$\begin{aligned}
72 &:= (-1! + 3! - 2!) \times 4! = 1^1 - 3^2 + 2^4 + 4^3. \\
&= -1^1 + 3^4 + 2^3 - 4^2. \\
&= -1^3 + 3^4 - 2^2 - 4^1. \\
&= 1^4 + 3^1 + 2^2 + 4^3. \\
&= 1^4 + 3^2 - 2^1 + 4^3. \\
&= (1^4 + 3^2 + 2^3) \times 4^1. \\
&= (1^4 + 3^3) \times 2^1 + 4^2. \\
&= -1^3 + 3^2 + 2^4 \times 4^1. \\
&= (1^4 \times 3^1) \times (2^3 + 4^2). \\
&:= 1! \times 5! - 4! \times 2! = (1^4 + 5^2) \times 4^1 - 2^5.
\end{aligned}$$

$$73 := 5! + 1! - 4! \times 2! = 5^2 - (1^5 - 4^1) \times 2^4.$$

$$\begin{aligned}
78 &:= (1! + 2!) \times 4! + 3! = 1^2 - 2^3 + 4^1 + 3^4. \\
&= 1^2 + 2^4 + 4^3 - 3^1.
\end{aligned}$$

$$88 := -2! - 3! - 4! + 5! = -2^5 + 3^4 + 4^3 - 5^2.$$

$$\begin{aligned}
90 &:= (1! + 2!) \times (4! + 3!) = 1^1 - 2^3 + 4^2 + 3^4. \\
&= -1^2 + 2^4 \times 4^1 + 3^3. \\
&:= 5! \times 1! - 3! - 4! = 5^1 \times (1^5 + 3^4 - 4^3).
\end{aligned}$$

$$\begin{aligned}
 92 &:= (1! - 4!) \times (2! - 3!) = -1^2 + 4^1 + 2^3 + 3^4. \\
 &= 1^2 + 4^1 \times 2^4 + 3^3. \\
 &= 1^4 \times 4^1 \times (-2^2 + 3^3). \\
 &:= 2! - 3! - 4! + 5! = 2^5 - 3^4 + 4^2 + 5^3.
 \end{aligned}$$

$$\begin{aligned}
 93 &:= 5! - 4! - 1! - 2! = 5^2 \times (4^1 + 1^4) - 2^5. \\
 &= 5^2 + 4^1 \times (1^5 + 2^4).
 \end{aligned}$$

$$\begin{aligned}
 95 &:= 1! - 4! - 2! + 5! = -1^2 + 4^4 - 2^5 \times 5^1. \\
 &= -1^5 + 4^2 + 2^4 \times 5^1. \\
 &:= -1! + (3! - 2!) \times 4! = 1^3 \times 3^4 - 2^1 + 4^2. \\
 &= -1^3 + 3^1 \times (2^4 + 4^2).
 \end{aligned}$$

$$\begin{aligned}
 96 &:= (1! \times 3! - 2!) \times 4! = (1^1 + 3^2) \times 2^4 - 4^3. \\
 &= (-1^2 + 3^1) \times 2^4 + 4^3. \\
 &= (-1^2 + 3^4) \times 2^1 - 4^3. \\
 &= (-1^3 + 3^2 + 2^4) \times 4^1. \\
 &= 1^3 + 3^4 - 2^1 + 4^2.
 \end{aligned}$$

$$\begin{aligned}
 96 &:= (1! \times 3! - 2!) \times 4! = (1^4 + 3^3 - 2^2) \times 4^1. \\
 &= -1^3 + 3^4 + 2^2 \times 4^1. \\
 &= 1^3 \times 3^1 \times (2^4 + 4^2). \\
 &= (1^4 + 3^1) \times (2^3 + 4^2). \\
 &= (-1^4 + 3^2) \times (2^3 + 4^1).
 \end{aligned}$$

$$\begin{aligned}
 96 &:= (4! - 5!) \times (1! - 2!) = 4^2 \times 5^1 \times 1^5 + 2^4. \\
 &= 4^2 \times (5^1 - 1^4) + 2^5. \\
 &= 4^4 - 5^1 \times 1^2 \times 2^5. \\
 &:= 2! \times 5! - 3! \times 4! = 2^3 \times (5^2 + 3^5 - 4^4).
 \end{aligned}$$

$$\begin{aligned}
 97 &:= 1! - (2! - 3!) \times 4! = (-1^3 + 2^1) \times 3^4 + 4^2. \\
 &= (1^4 + 2^1) \times 3^3 + 4^2. \\
 &= -1^2 + 2^1 \times 3^4 - 4^3. \\
 &:= -(4! + 1!) + 2! + 5! = -4^2 \times (1^1 + 2^5) + 5^4. \\
 &= 4^2 + 1^5 + 2^4 \times 5^1. \\
 &= 4^4 + 1^2 - 2^5 \times 5^1.
 \end{aligned}$$

$$99 := 1! + 2! - 4! + 5! = (-1^4 + 2^5) \times 4^1 - 5^2.$$

$$\begin{aligned}
 100 &:= (-2! + 3!) \times (1! + 4!) = 2^1 + 3^4 + 1^3 + 4^2. \\
 &= (2^4 + 3^2) \times 1^3 \times 4^1. \\
 &= 2^1 \times (3^4 + 1^2) - 4^3. \\
 &= 2^2 \times (3^3 - 1^4) - 4^1.
 \end{aligned}$$

$$\begin{aligned}
 102 &:= 5! - (1! + 2!) \times 3! = (5^2 + 1^5 + 2^3) \times 3^1. \\
 &= 5^3 \times 1^1 - 2^5 + 3^2. \\
 &= (5^1 + 1^5) \times (2^3 + 3^2). \\
 &= -5^1 - 1^5 + 2^2 \times 3^3. \\
 &= 5^2 \times (1^5 + 2^1) + 3^3.
 \end{aligned}$$

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

$$\begin{aligned}
 106 &:= 5! - (1! + 3!) \times 2! = (5^2 + 1^5 + 3^3) \times 2^1. \\
 &= 5^3 - 1^5 - 3^2 \times 2^1. \\
 &:= 5! - (3! + 1!) \times 2! = 5^2 \times 3^1 - 1^3 + 2^5.
 \end{aligned}$$

$$\begin{aligned}
 107 &:= 5! - 1! - 3! \times 2! = (5^2 \times 1^3) \times 3^1 + 2^5. \\
 &= 5^3 \times 1^5 - 3^2 \times 2^1. \\
 &= -5^1 + (1^5 + 3^3) \times 2^2.
 \end{aligned}$$

$$\begin{aligned}
 108 &:= 5! \times 1! - 3! \times 2! = 5^1 \times (1^2 + 3^3) - 2^5. \\
 &= 5^2 \times (1^5 + 3^1) + 2^3. \\
 &= 5^3 + 1^5 - 3^2 \times 2^1. \\
 &:= 5! \times 1! - 2! \times 3! = (5^1 - 1^5 + 2^3) \times 3^2.
 \end{aligned}$$

$$\begin{aligned}
 109 &:= 1! - 3! \times 2! + 5! = (1^5 - 3^2) \times 2^1 + 5^3. \\
 &= (-1^5 + 3^3) \times 2^2 + 5^1. \\
 &= -(1^5 + 3^1) \times 2^2 + 5^3.
 \end{aligned}$$

$$\begin{aligned}
 110 &:= 2! \times (1! - 3!) + 5! = -(2^2 + 1^5) \times 3^1 + 5^3. \\
 &= (-2^2 - 1^5 + 3^3) \times 5^1. \\
 &= (2^5 - 1^3 - 3^2) \times 5^1. \\
 &:= (2! - 4!) \times (1! - 3!) = 2^1 \times (4^3 \times 1^4 - 3^2).
 \end{aligned}$$

$$111 := 5! - 3! - 2! - 1! = (5^1 + 3^2) \times 2^3 - 1^5.$$

$$\begin{aligned}
 112 &:= 5! \times 1! - 3! - 2! = (5^1 - 1^5) \times 3^3 + 2^2. \\
 &= (5^1 \times 1^5 + 3^2) \times 2^3. \\
 &= 5^3 - 1^5 - 3^1 \times 2^2.
 \end{aligned}$$

$$\begin{aligned}
113 &:= 1! - 2! - 3! + 5! = -1^1 - 2^2 + 3^5 - 5^3. \\
&= -1^5 \times 2^2 \times 3^1 + 5^3. \\
&= (1^5 \times 2^2) \times 3^3 + 5^1. \\
&= -1^5 - 2^1 - 3^2 + 5^3. \\
&= 1^5 + 2^3 \times (3^2 + 5^1).
\end{aligned}$$

$$\begin{aligned}
114 &:= (1! - 2!) \times 3! + 5! = -1^1 \times 2^2 + 3^5 - 5^3. \\
&= -1^5 \times 2^1 - 3^2 + 5^3. \\
&= 1^5 - 2^2 \times 3^1 + 5^3. \\
&= 1^5 + 2^2 \times 3^3 + 5^1. \\
&= -1^3 + (2^5 - 3^2) \times 5^1.
\end{aligned}$$

$$\begin{aligned}
115 &:= 2! - 1! - 3! + 5! = -2^1 + 1^5 - 3^2 + 5^3. \\
&= -2^1 - 1^2 + 3^5 - 5^3. \\
&= -2^2 + 1^1 + 3^5 - 5^3. \\
&= (-2^2 \times 1^5 + 3^3) \times 5^1. \\
&= (2^5 \times 1^3 - 3^2) \times 5^1.
\end{aligned}$$

$$\begin{aligned}
116 &:= 1! \times 2! - 3! + 5! = -1^2 \times 2^1 + 3^5 - 5^3. \\
&= (1^5 - 2^1) \times 3^2 + 5^3. \\
&= (1^5 - 2^2) \times 3^1 + 5^3. \\
&= 1^3 + (2^5 - 3^2) \times 5^1. \\
&= 1^5 - (2^2 - 3^3) \times 5^1.
\end{aligned}$$

$$\begin{aligned}
117 &:= 1! - 3! + 2! + 5! = 1^2 + 3^5 - 2^1 - 5^3. \\
&= -1^5 - 3^1 - 2^2 + 5^3. \\
&= -1^5 - 3^2 + 2^1 + 5^3. \\
&= (1^5 + 3^3) \times 2^2 + 5^1. \\
&= 1^5 \times 3^2 \times (2^3 + 5^1).
\end{aligned}$$

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

$$\begin{aligned}
120 &:= (1! + 3! - 2!) \times 4! = (-1^4 + 3^3 + 2^2) \times 4^1. \\
&= (1^3 + 3^2) \times (2^4 - 4^1). \\
&= (1^4 - 3^1) \times (2^2 - 4^3). \\
&= 1^4 - 3^2 + 2^1 \times 4^3. \\
&= (1^4 + 3^2) \times (2^3 + 4^1).
\end{aligned}$$

$$\begin{aligned}
123 &:= 3! - 1! + 5! - 2! = 3^1 - 1^5 + 5^3 - 2^2. \\
&= 3^5 + 1^1 - 5^3 + 2^2.
\end{aligned}$$

$$\begin{aligned}
124 &:= -1! \times 2! + 3! + 5! = (1^3 + 2^5) \times 3^1 + 5^2. \\
&= -1^5 \times 2^2 + 3^1 + 5^3. \\
&= (1^3 - 2^5) \times (-3^2 + 5^1). \\
&= -1^1 + (2^5 - 3^3) \times 5^2. \\
&= -1^5 + (2^3 - 3^1) \times 5^2.
\end{aligned}$$

$$\begin{aligned}
125 &:= 1! - 2! + 3! + 5! = (1^1 \times 2^5 - 3^3) \times 5^2. \\
&= (1^5 \times 2^2 - 3^1) \times 5^3. \\
&= (1^5 \times 2^3 - 3^1) \times 5^2.
\end{aligned}$$

$$\begin{aligned}
126 &:= (-1! + 2!) \times 3! + 5! = 1^5 \times 2^2 - 3^1 + 5^3. \\
&= (1^5 + 2^3) \times (3^2 + 5^1). \\
&= 1^1 + (2^5 - 3^3) \times 5^2. \\
&= 1^5 + (2^3 - 3^1) \times 5^2.
\end{aligned}$$

$$\begin{aligned}
127 &:= (-1! + 2!) + 3! + 5! = 1^5 + 2^2 - 3^1 + 5^3. \\
&= -1^3 + 2^5 \times (3^2 - 5^1). \\
&= -1^5 + 2^2 \times (3^3 + 5^1).
\end{aligned}$$

$$\begin{aligned}
128 &:= 1! \times 2! + 5! + 3! = (-1^2 + 2^5) \times 5^1 - 3^3. \\
&= 1^3 \times 2^5 \times (-5^1 + 3^2).
\end{aligned}$$

$$129 := 1! + 2! + 3! + 5! = 1^3 + 2^5 \times (3^2 - 5^1).$$

$$\begin{aligned}
130 &:= 2! \times (3! - 1!) + 5! = (2^3 - 3^1) \times (1^5 + 5^2). \\
&= (2^5 - 3^3) \times (1^1 + 5^2). \\
&= -2^5 + 3^3 \times (1^2 + 5^1). \\
&:= (3! - 1!) \times 2! + 5! = 3^3 \times (1^5 + 2^2) - 5^1.
\end{aligned}$$

$$\begin{aligned}
131 &:= 5! + 2! \times 3! - 1! = 5^3 - 2^1 + 3^2 - 1^5. \\
&= 5^3 + 2^2 + 3^1 - 1^5. \\
&= -5^3 + 2^5 \times (3^2 - 1^1). \\
&:= 5! + 3! \times 2! - 1! = 5^1 \times 3^3 - 2^2 \times 1^5. \\
&= 5^3 + 3^1 + 2^2 - 1^5. \\
&= 5^3 + 3^2 - 2^1 - 1^5.
\end{aligned}$$

$$\begin{aligned}
132 &:= 5! + 2! \times 1! \times 3! = 5^1 \times 2^5 - 1^2 - 3^3. \\
&= (5^3 - 2^1) \times 1^5 + 3^2. \\
&= 5^3 \times (2^1 + 1^2) - 3^5. \\
&= 5^3 \times (2^2 - 1^1) - 3^5. \\
&:= 1! \times 3! \times (4! - 2!) = (1^3 + 3^4 - 4^2) \times 2^1. \\
&= (-1^4 + 3^1) \times 4^3 + 2^2. \\
&= 1^4 + 3^1 + 4^2 \times 2^3.
\end{aligned}$$

$$\begin{aligned}
133 &:= 1! + 3! \times 2! + 5! = 1^5 + 3^2 - 2^1 + 5^3. \\
&= -1^2 \times 3^3 + 2^5 \times 5^1. \\
&:= 3! \times (4! - 2!) + 1! = (3^1 + 4^2) \times (2^3 - 1^4).
\end{aligned}$$

$$\begin{aligned}
134 &:= 2! \times (1! + 3!) + 5! = (2^1 - 1^5) \times 3^2 + 5^3. \\
&= (2^2 - 1^5) \times 3^1 + 5^3. \\
&= 2^2 - (1^5 - 3^3) \times 5^1.
\end{aligned}$$

$$\begin{aligned}
136 &:= 3! \times (-1! + 4!) - 2! = (3^1 - 1^4) \times (4^3 + 2^2). \\
&= 3^2 - 1^4 + 4^3 \times 2^1.
\end{aligned}$$

$$137 := 5! + 4! - 3! - 1! = 5^3 + 4^4 - 3^5 - 1^1.$$

$$\begin{aligned}
138 &:= 3! \times (2! + 1!) + 5! = (-3^2 + 2^5) \times (1^3 + 5^1). \\
&= (3^3 - 2^2) \times (1^5 + 5^1). \\
&= -3^3 + (2^5 + 1^2) \times 5^1. \\
&:= (1! - 2! + 4!) \times 3! = 1^4 + 2^1 \times 4^3 + 3^2. \\
&:= 1! \times 4! - 3! + 5! = 1^1 \times 4^4 - 3^5 + 5^3.
\end{aligned}$$

$$\begin{aligned}
139 &:= 1! - 3! + 4! + 5! = 1^1 - 3^5 + 4^4 + 5^3. \\
&= -1^5 + 3^4 + 4^3 - 5^1.
\end{aligned}$$

$$\begin{aligned}
140 &:= 2! + 3! \times (4! - 1!) = -2^2 + 3^4 + 4^3 - 1^1. \\
&= (2^4 \times 3^2 - 4^1) \times 1^3. \\
&:= 2! + 4! - 3! + 5! = -2^5 \times 4^2 + 3^3 + 5^4.
\end{aligned}$$

$$\begin{aligned}
141 &:= 3! \times 4! - 1! - 2! = (3^4 + 4^3) \times 1^1 - 2^2. \\
&= 3^1 \times (4^3 - 1^2 - 2^4). \\
&= -3^1 + 4^2 \times (1^4 + 2^3). \\
&:= 4! - 1! + 5! - 2! = (4^1 + 1^5) \times 5^2 + 2^4.
\end{aligned}$$

$$\begin{aligned}
142 &:= 1! \times 3! \times 4! - 2! = 1^1 + 3^4 + 4^3 - 2^2. \\
&= -1^2 + 3^4 + 4^3 - 2^1.
\end{aligned}$$

$$\begin{aligned}
143 &:= 1! + 3! \times 4! - 2! = 1^2 \times 3^4 + 4^3 - 2^1. \\
&= -1^2 + 3^1 \times (4^3 - 2^4). \\
&:= 1! - 2! + 5! + 4! = -1^4 + 2^5 \times 5^1 - 4^2.
\end{aligned}$$

$$\begin{aligned}
144 &:= (2! - 1!) \times 3! \times 4! = -2^1 + 1^2 + 3^4 + 4^3. \\
&= 2^1 \times (-1^3 + 3^4) - 4^2. \\
&= -2^2 \times (1^1 + 3^3) + 4^4. \\
&= 2^1 \times (-1^4 + 3^2 + 4^3). \\
&= 2^3 \times (-1^4 + 3^1 + 4^2). \\
&= 2^4 - (1^2 - 3^1) \times 4^3. \\
&:= (2! - 1!) \times 5! + 4! = 2^5 \times 1^4 \times 5^1 - 4^2.
\end{aligned}$$

$$\begin{aligned}
145 &:= 4! - 1! + 2! + 5! = -(4^2 - 1^1) \times 2^5 + 5^4. \\
&= -4^2 + 1^4 + 2^5 \times 5^1. \\
&:= 4! \times 3! + 2! - 1! = (4^3 + 3^2) \times 2^1 - 1^4. \\
&= -4^2 + 3^4 \times 2^1 - 1^3. \\
&= (4^3 + 3^4) \times (2^1 - 1^2).
\end{aligned}$$

$$\begin{aligned}
146 &:= 1! \times 4! \times 3! + 2! = -1^2 + 4^3 + 3^4 + 2^1. \\
&= -1^3 \times 4^2 + 3^4 \times 2^1.
\end{aligned}$$

$$\begin{aligned}
147 &:= 4! \times 3! + 2! + 1! = 4^1 + 3^2 \times 2^4 - 1^3. \\
&= -4^2 + 3^4 \times 2^1 + 1^3. \\
&= 4^4 - 3^3 \times 2^2 - 1^1. \\
&:= 3! \times 4! + 2! + 1! = 3^1 \times (4^3 - 2^4 + 1^2).
\end{aligned}$$

$$\begin{aligned}
148 &:= (4! + 1!) \times 3! - 2! = 4^3 - 1^1 + 3^4 + 2^2. \\
&= 4^3 + 1^2 + 3^4 + 2^1. \\
&= (4^3 + 1^4 + 3^2) \times 2^1. \\
&= 4^1 \times 1^3 + 3^2 \times 2^4. \\
&= 4^4 \times 1^1 - 3^3 \times 2^2. \\
&= -4^2 + (1^3 + 3^4) \times 2^1.
\end{aligned}$$

$$149 := 3! - 1! + 4! + 5! = 3^4 - 1^5 + 4^3 + 5^1.$$

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

$$152 := 2! + 3! + 4! + 5! = 2^5 + 3^4 + 4^3 - 5^2.$$

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

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

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

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

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

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

$$192 := 4! \times (3! \times 1! + 2!) = (4^1 + 3^2 - 1^3) \times 2^4.$$

$$= (4^2 - 3^1 - 1^3) \times 2^4.$$

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

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

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

$$= 4^4 - (3^2 - 1^1) \times 2^3.$$

$$192 := 2! \times (-4! + 5!) \times 1! = (2^4 + 4^2) \times (5^1 + 1^5).$$

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

$$193 := (2! + 3!) \times 4! + 1! = 2^1 \times (3^4 + 4^2) - 1^3.$$

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

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

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

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

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

$$218 := (1! + 5!) \times 2! - 4! = -1^2 - 5^1 - 2^5 + 4^4.$$

$$222 := 2! \times 5! - 4! + 3! = -2^5 + 5^2 + 4^4 - 3^3.$$

$$= 2^5 + 5^3 - 4^2 + 3^4.$$

$$226 := 2! \times (5! - 1! - 3!) = (2^3 - 5^2) \times 1^1 + 3^5.$$

$$227 := 2! \times (5! - 3!) - 1! = (2^3 - 5^2) + 3^5 + 1^1.$$

$$228 := 1! \times 2! \times (5! - 3!) = (1^3 - 2^2) \times 5^1 + 3^5.$$

$$= (1^5 + 2^3) \times 5^2 + 3^1.$$

$$229 := 1! - 2! \times (3! - 5!) = -1^2 - 2^3 + 3^5 - 5^1.$$

$$230 := (1! - 3! + 5!) \times 2! = 1^2 \times 3^5 - 5^1 - 2^3.$$

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

$$232 := 2! \times (5! - 1!) - 3! = 2^1 \times (5^3 \times 1^5 - 3^2).$$

$$= 2^3 \times (5^2 + 1^5 + 3^1).$$

$$233 := 2! \times 5! - 3! - 1! = -2^2 - 5^1 + 3^5 - 1^3.$$

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

$$234 := 2! \times 5! \times 1! - 3! = -(2^2 + 5^1) \times 1^3 + 3^5.$$

$$= (2^5 - 5^1 - 1^3) \times 3^2.$$

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

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

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

$$235 := 1! - 3! + 5! \times 2! = 1^3 + 3^5 - 5^1 - 2^2.$$

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

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

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

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

$$= 4^4 - 2^3 - 3^2 + 1^1.$$

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

$$= 4^4 - 2^1 \times (3^2 - 1^3).$$

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

$$= 4^4 - 2^3 \times (3^1 - 1^2).$$

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

$$244 := 3! + 2! \times (5! - 1!) = (3^5 - 2^2 + 5^1) \times 1^3.$$

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

$$= 3^3 \times (2^2 + 5^1) + 1^5.$$

$$245 := 3! - 1! + 2! \times 5! = 3^5 - 1^2 + 2^3 - 5^1.$$

$$= 3^5 + 1^3 - 2^2 + 5^1.$$

$$\begin{aligned} 246 &:= 1! \times 3! + 5! \times 2! = 1^2 \times 3^5 - 5^1 + 2^3. \\ &= (-1^5 + 3^1) \times 5^3 - 2^2. \end{aligned}$$

$$247 := 2! \times 5! + 1! + 3! = 2^3 - 5^1 + 1^2 + 3^5.$$

$$\begin{aligned} 250 &:= (5! - 1! + 3!) \times 2! = 5^2 \times (-1^5 + 3^1 + 2^3). \\ &= 5^3 \times (1^5 - 3^1 + 2^2). \end{aligned}$$

$$251 := -1! + 2! \times (3! + 5!) = -1^3 + 2^2 + 3^5 + 5^1.$$

$$252 := 1! \times 2! \times (5! + 3!) = (1^3 + 2^5 - 5^1) \times 3^2.$$

$$254 := (1! + 3! + 5!) \times 2! = (-1^5 + 3^1) \times 5^3 + 2^2.$$

$$258 := 5! + (4! - 1!) \times 3! = 5^3 \times 4^1 + 1^4 - 3^5.$$

$$\begin{aligned} 262 &:= (5! - 1!) \times 2! + 4! = -5^2 - 1^1 + 2^5 + 4^4. \\ &= 5^1 + 1^5 + 2^4 \times 4^2. \end{aligned}$$

$$263 := 2! \times 5! - 1! + 4! = 2^5 - 5^2 \times 1^1 + 4^4.$$

$$\begin{aligned} 264 &:= 1! \times 2! \times 5! + 4! = 1^1 + 2^5 - 5^2 + 4^4. \\ &= -1^5 + 2^2 + 5^1 + 4^4. \end{aligned}$$

$$\begin{aligned} 264 &:= (2! \times 3! - 1!) \times 4! = -2^1 + 3^2 + 1^3 + 4^4. \\ &= 2^2 + 3^1 + 1^3 + 4^4. \\ &= 2^2 \times (3^4 + 1^1) - 4^3. \\ &= 2^2 \times (3^1 - 1^4 + 4^3). \end{aligned}$$

$$266 := 2! + 3! \times 4! + 5! = -2^4 + 3^5 + 4^3 - 5^2.$$

$$276 := 2! \times (3! + 5!) + 4! = -2^5 + 3^3 + 5^2 + 4^4.$$

$$\begin{aligned} 282 &:= (2! \times 4! - 1!) \times 3! = -2^1 + 4^4 + 1^2 + 3^3. \\ &= 2^4 \times 4^2 - 1^1 + 3^3. \end{aligned}$$

$$\begin{aligned} 286 &:= 2! \times (3! \times 4! - 1!) = 2^1 + 3^3 + 4^4 + 1^2. \\ &= 2^2 + 3^3 + 4^4 - 1^1. \end{aligned}$$

$$\begin{aligned} 287 &:= 2! \times 3! \times 4! - 1! = 2^2 + 3^3 + 4^4 \times 1^1. \\ &= 2^3 \times 3^2 \times 4^1 - 1^4. \end{aligned}$$

$$\begin{aligned} 288 &:= 2! \times 3! \times 1! \times 4! = (-2^3 + 3^4 - 1^2) \times 4^1. \\ &= (2^4 + 3^1 - 1^3) \times 4^2. \\ &= 2^1 \times (3^4 - 1^2 + 4^3). \end{aligned}$$

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

$$289 := 1! + 2! \times 3! \times 4! = -1^2 + 2^1 \times (3^4 + 4^3).$$

$$\begin{aligned} 312 &:= (1! + 3! \times 2!) \times 4! = (1^3 + 3^4 - 2^2) \times 4^1. \\ &= (1^2 - 3^3) \times (-2^4 + 4^1). \end{aligned}$$

$$\begin{aligned} 336 &:= (1! + 2!) \times 5! - 4! = (1^5 \times 2^4 + 5^1) \times 4^2. \\ &= 1^5 \times 2^4 \times (5^2 - 4^1). \\ &:= (1! + 3!) \times 2! \times 4! = (-1^3 + 3^4 + 2^2) \times 4^1. \\ &= -1^1 + 3^4 + 2^2 \times 4^3. \\ &= (1^2 + 3^3) \times (2^4 - 4^1). \end{aligned}$$

$$\begin{aligned} 342 &:= (2! + 1!) \times (5! - 3!) = (2^5 + 1^3 + 5^1) \times 3^2. \\ &= -2^5 - 1^2 + 5^3 \times 3^1. \end{aligned}$$

$$\begin{aligned} 354 &:= (1! + 2!) \times 5! - 3! = (1^1 - 2^2) \times (5^3 - 3^5). \\ &= (1^2 + 2^1) \times (-5^3 + 3^5). \end{aligned}$$

$$\begin{aligned} 366 &:= 3! + (1! + 2!) \times 5! = 3^5 \times 1^2 - 2^1 + 5^3. \\ &= 3^1 \times (1^5 - 2^2 + 5^3). \\ &= -3^2 + (1^5 + 2^1) \times 5^3. \end{aligned}$$

$$378 := (1! + 2!) \times (3! + 5!) = -1^5 + 2^2 + 3^1 \times 5^3.$$

$$\begin{aligned} 384 &:= 4! + 5! \times (1! + 2!) = (4^2 - 5^1 + 1^4) \times 2^5. \\ &= 4^4 + (5^1 - 1^2) \times 2^5. \end{aligned}$$

$$\begin{aligned} 432 &:= 4! \times (1! + 2!) \times 3! = (4^1 - 1^3) \times 2^4 \times 3^2. \\ &= (4^3 \times 1^1 - 2^4) \times 3^2. \\ &= 4^2 \times (-1^4 + 2^1) \times 3^3. \\ &:= (4! + 5!) \times (1! + 2!) = 4^2 \times (-5^1 \times 1^4 + 2^5). \end{aligned}$$

$$468 := 6! - 2! \times (3! + 5!) = 6^2 + 2^6 + 3^5 + 5^3.$$

$$476 := (5! - 1!) \times (3! - 2!) = (-5^3 + 1^1 + 3^5) \times 2^2.$$

$$480 := 1! \times 5! \times (3! - 2!) = (1^3 + 5^1 + 3^2) \times 2^5.$$

$$484 := (1! + 5!) \times (3! - 2!) = (-1^5 + 5^3 - 3^1) \times 2^2.$$

$$552 := 6! - (1! + 3!) \times 4! = -6^3 \times 1^6 + 3^1 \times 4^4.$$

$$570 := 6! - 3! \times (1! + 4!) = 6^4 - 3^6 - 1^3 + 4^1.$$

$$576 := (4! + 5!) \times (3! - 2!) = 4^5 + (5^2 - 3^4) \times 2^3.$$

$$577 := 1! + (5! - 4!) \times 3! = -(1^5 - 5^3) \times 4^1 + 3^4.$$

$$582 := (1! - 4! + 5!) \times 3! = 1^5 + 4^1 \times 5^3 + 3^4.$$

$$:= (3! - 4! - 5!) + 6! = 3^6 + 4^5 + 5^3 - 6^4.$$

$$598 := (3! - 1!) \times 5! - 2! = (3^3 - 1^5) \times (5^2 - 2^1).$$

$$600 := (1! - 2! + 3!) \times 5! = 1^5 \times 2^3 \times 3^1 \times 5^2.$$

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

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

$$608 := (2! - 5!) + 3! + 6! = -2^5 - 5^3 + 3^6 + 6^2.$$

$$610 := (5! + 2!) \times (3! - 1!) = 5^3 + 2^1 \times 3^5 - 1^2.$$

$$624 := (3! - 1!) \times 5! + 4! = (-3^4 + 1^3) \times 5^1 + 4^5.$$

$$= 3^5 \times 1^1 + 5^3 + 4^4.$$

$$672 := 3! \times 5! - 4! \times 2! = (-3^4 + 5^3) \times 4^2 - 2^5.$$

$$689 := 6! - 4! - 3! - 1! = 6^3 - 4^4 + 3^6 \times 1^1.$$

$$690 := 6! - 4! - 3! \times 1! = 6^3 - 4^4 + 3^6 + 1^1.$$

$$702 := (-1! - 2! + 5!) \times 3! = (-1^2 + 2^5 - 5^1) \times 3^3.$$

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

$$702 := 6! - 3! \times (2! + 1!) = -6^2 + 3^6 + 2^3 + 1^1.$$

$$704 := 2! + 3! - 4! + 6! = (-2^6 + 3^3) \times 4^2 + 6^4.$$

$$706 := 6! - 2! \times (1! + 3!) = -6^1 \times 2^2 + 1^3 + 3^6.$$

$$707 := -1! + 3! \times (5! - 2!) = 1^1 \times 3^3 \times 5^2 + 2^5.$$

$$708 := 1! \times 3! \times (5! - 2!) = 1^1 + 3^3 \times 5^2 + 2^5.$$

$$709 := 1! + 6! - 2! \times 3! = (1^3 - 6^1) \times 2^2 + 3^6.$$

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

$$711 := -1! - 2! + 6! - 3! = (1^3 - 2^2) \times 6^1 + 3^6.$$

$$= -1^2 + 2^6 + 6^3 \times 3^1.$$

$$712 := 6! - 3! - 2! \times 1! = (6^3 \times 3^1 + 2^6) \times 1^2.$$

$$713 := 1! - 2! - 3! + 6! = 1^2 + 2^6 + 3^1 \times 6^3.$$

$$714 := (1! - 2!) \times 3! + 6! = -1^2 - 2^3 + 3^6 - 6^1.$$

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

$$715 := 6! - 1! - 3! + 2! = -6^1 \times 1^2 + 3^6 - 2^3.$$

$$= (6^3 + 1^2) \times 3^1 + 2^6.$$

$$716 := 1! \times 2! - 3! + 6! = 1^2 - 2^3 + 3^6 - 6^1.$$

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

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

$$720 := (-1! + 3!) \times (4! + 5!) = (-1^5 + 3^4 + 4^3) \times 5^1.$$

$$724 := (1! + 5!) \times 3! - 2! = -1^3 + 5^2 \times (-3^1 + 2^5).$$

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

$$726 := 3! \times (2! + 5! - 1!) = -(3^1 - 2^5) \times 5^2 + 1^3.$$

$$= (3^3 + 2^1) \times 5^2 + 1^5.$$

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

$$= -2^3 - 1^2 + 6^1 + 3^6.$$

$$727 := 2! - 1! + 3! + 6! = 2^2 \times 1^3 + 3^6 - 6^1.$$

$$= -2^3 \times 1^2 + 3^6 + 6^1.$$

$$728 := 1! \times 3! + 2! + 6! = -(1^1 - 3^2) \times 2^6 + 6^3.$$

$$= 1^2 + 3^6 - 2^3 + 6^1.$$

$$= 1^3 + 3^6 + 2^2 - 6^1.$$

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

$$729 := 1! + 2! + 6! + 3! = (-1^1 + 2^6 - 6^2) \times 3^3.$$

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

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

$$\begin{aligned} 730 &:= (3! - 1!) \times 2! + 6! = 3^6 - 1^2 + 2^3 - 6^1. \\ &= 3^6 - 1^3 - 2^2 + 6^1. \end{aligned}$$

$$\begin{aligned} 731 &:= 2! \times 3! - 1! + 6! = -2^2 + 3^6 \times 1^3 + 6^1. \\ &= 2^3 + 3^6 \times 1^2 - 6^1. \end{aligned}$$

$$\begin{aligned} 732 &:= 1! \times 2! \times 3! + 6! = 1^2 + 2^3 + 3^6 - 6^1. \\ &= 1^3 - 2^2 + 3^6 + 6^1. \\ &:= 1! \times 3! \times (2! + 5!) = (1^2 + 3^5) \times (2^3 - 5^1). \end{aligned}$$

$$738 := (1! + 2!) \times 3! + 6! = -1^3 + 2^2 + 3^6 + 6^1.$$

$$743 := 3! \times 5! - 1! + 4! = 3^5 + 5^3 \times 1^4 \times 4^1.$$

$$756 := 4! + (2! + 5!) \times 3! = 4^3 \times 2^4 - 5^2 - 3^5.$$

$$768 := 1! \times 6! + 2! \times 4! = (1^6 + 6^1 - 2^2) \times 4^4.$$

$$780 := 2! \times (4! + 3!) + 6! = 2^6 - 4^4 + 3^3 \times 6^2.$$

$$816 := 5! \times (1! + 3!) - 4! = 5^4 - 1^5 + 3^1 \times 4^3.$$

$$826 := (1! + 3!) \times (-2! + 5!) = -1^1 + 3^3 + 2^5 \times 5^2.$$

$$838 := 1! \times 5! - 2! + 6! = (1^6 + 5^2) \times 2^5 + 6^1.$$

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

$$\begin{aligned} 840 &:= (2! + 3! - 1!) \times 5! = 2^5 \times 3^3 + 1^1 - 5^2. \\ &= (2^5 + 3^1) \times (-1^3 + 5^2). \end{aligned}$$

$$842 := 2! + (1! + 3!) \times 5! = (2^5 - 1^2) \times 3^3 + 5^1.$$

$$847 := 1! + 3! + 5! + 6! = -1^5 + 3^6 + 5^3 - 6^1.$$

$$848 := 2! + 6! + 3! + 5! = -2^6 \times 6^2 + 3^3 + 5^5.$$

$$854 := (5! + 2!) \times (1! + 3!) = 5^3 + (2^2 - 1^1) \times 3^5.$$

$$863 := (4! + 5!) \times 3! - 1! = -4^1 + 5^4 + 3^5 - 1^3.$$

$$864 := 1! \times 3! \times 4! + 6! = (-1^6 + 3^4 + 4^3) \times 6^1.$$

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

$$865 := 1! + 3! \times (4! + 5!) = 1^3 + 3^5 - 4^1 + 5^4.$$

$$876 := (5! + 4! + 2!) \times 3! = 5^4 + 4^2 - 2^3 + 3^5.$$

$$936 := (2! + 3!) \times 5! - 4! = 2^2 + 3^5 + 5^4 + 4^3.$$

$$952 := (2! + 3!) \times (5! - 1!) = 2^2 \times (3^5 - 5^1) \times 1^3.$$

$$\begin{aligned} 960 &:= 1! \times 6! + 5! \times 2! = (-1^6 + 6^1 + 5^2) \times 2^5. \\ &= (-1^6 + 6^2 - 5^1) \times 2^5. \end{aligned}$$

$$\begin{aligned} 961 &:= 1! + 2! \times 5! + 6! = (1^6 - 2^5) \times (5^1 - 6^2). \\ &= (-1^6 + 2^5) \times (5^2 + 6^1). \end{aligned}$$

$$\begin{aligned} 968 &:= (2! + 3!) \times (1! + 5!) = 2^2 \times 3^5 + 1^3 - 5^1. \\ &= -2^5 + (3^2 - 1^1) \times 5^3. \end{aligned}$$

$$984 := (2! + 3!) \times 5! + 4! = 2^2 + 3^4 - 5^3 + 4^5.$$

$$1200 := 2! \times (3! - 1!) \times 5! = (-2^2 + 3^5 + 1^3) \times 5^1.$$

$$1296 := 2! \times 6! - 3! \times 4! = -2^3 \times 6^4 + 3^6 \times 4^2.$$

$$\begin{aligned} 1392 &:= (3! \times 5! - 4!) \times 2! = 3^5 + 5^3 + 4^4 \times 2^2. \\ &:= 2! \times (3! \times 5! - 4!) = 2^5 \times (-3^4 + 5^3) - 4^2. \end{aligned}$$

$$1434 := (-1! + 5! \times 2!) \times 3! = (1^3 + 5^1) \times (-2^2 + 3^5).$$

$$1439 := 2! \times 3! \times 5! - 1! = 2^5 \times 3^2 \times 5^1 - 1^3.$$

$$1440 := 4! \times 5! - 2! \times 6! = -4^4 \times 5^2 + 2^6 + 6^5.$$

$$1464 := 2! \times 3! \times 5! + 4! = 2^2 \times (-3^5 + 5^4) - 4^3.$$

$$1466 := 4! + (1! + 6!) \times 2! = (4^4 - 1^2) \times 6^1 - 2^6.$$

$$\begin{aligned} 1488 &:= 2! \times (3! \times 5! + 4!) = 2^3 \times (3^5 - 5^2) - 4^4. \\ &= 2^2 \times (-3^3 - 5^4 + 4^5). \end{aligned}$$

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

$$1584 := 3! \times (5! \times 2! + 4!) = (3^3 + 5^4) \times 2^2 - 4^5.$$

$$1680 := (1! \times 5! + 6!) \times 2! = (-1^5 + 5^2) \times (6^1 + 2^6).$$

$$1728 := 2! \times (3! \times 4! + 6!) = 2^6 \times 3^4 - 4^2 \times 6^3.$$

$$1920 := (-2! - 3! + 4!) \times 5! = 2^5 \times (-3^4 + 4^2 + 5^3).$$

$$\begin{aligned} 2160 &:= (3! - 1! - 2!) \times 6! = (-3^1 - 1^3 + 2^6) \times 6^2. \\ &= (3^2 - 1^6 + 2^1) \times 6^3. \end{aligned}$$

$$2208 := (2! + 5!) \times 4! - 6! = (2^6 - 5^2) \times 4^4 - 6^5.$$

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

$$2520 := 5! \times (4! - 1! - 2!) = (5^4 + 4^1 + 1^5) \times 2^2.$$

$$2640 := (-1! \times 2! + 4!) \times 5! = (1^4 + 2^5) \times 4^2 \times 5^1.$$

$$2784 := (2! - 3! + 5!) \times 4! = (-2^5 + 3^4 + 5^3) \times 4^2.$$

$$2868 := 4! \times 5! - 2! \times 3! = -4^4 + 5^5 + 2^3 - 3^2.$$

$$\begin{aligned}
2873 &:= 4! \times 5! - 1! - 3! = -4^4 + 5^5 + 1^3 + 3^1. & 11520 &:= (4! - 3! - 2!) \times 6! = -4^4 \times 3^2 + 2^6 \times 6^3. \\
2880 &:= (-2! + 3!) \times 1! \times 6! = 2^6 \times 3^2 \times (-1^3 + 6^1). & 12960 &:= (1! + 2!) \times 3! \times 6! = (-1^2 + 2^6 - 3^1) \times 6^3. \\
2892 &:= 2! \times 3! + 4! \times 5! = -2^2 + 3^3 - 4^4 + 5^5. & 13800 &:= (4! - 1!) \times (-5! + 6!) = 4^1 \times (1^6 + 5^5) + 6^4. \\
2898 &:= (-1! + 4!) \times (3! + 5!) = -1^3 + 4^5 + 3^1 \times 5^4. & 15840 &:= 2! \times (4! \times 5! + 7!) = 2^5 + 4^7 - 5^4 + 7^2. \\
2976 &:= 4! \times (3! - 2! + 5!) = -4^3 - 3^4 - 2^2 + 5^5. & 17160 &:= 1! \times 4! \times 6! - 5! = -1^5 + 4^4 \times 6^1 + 5^6. \\
2994 &:= 5! \times (1! + 4!) - 3! = (5^1 + 1^3) \times (4^4 + 3^5). & 17161 &:= 1! - 5! + 4! \times 6! = 1^5 \times 5^6 + 4^4 \times 6^1. \\
3048 &:= (1! + 3! + 5!) \times 4! = -1^3 \times 3^4 + 5^5 + 4^1. & 17274 &:= (4! \times 5! - 1!) \times 3! = 4^5 - 5^4 \times (1^1 - 3^3). \\
3072 &:= (2! + 3! + 5!) \times 4! = 2^3 \times (-3^5 + 5^4) + 4^2. & 19440 &:= (1! + 2! + 4!) \times 6! = (1^6 - 2^1 + 4^2) \times 6^4. \\
3094 &:= (2! + 4!) \times (5! - 1!) = -2^1 \times 4^2 + 5^5 + 1^4. & &= (-1^6 + 2^2 \times 4^1) \times 6^4. \\
&= -2^4 - 4^2 + 5^5 + 1^1. & 20160 &:= (4! - 2! + 3!) \times 6! = (4^4 + 2^6) \times (3^3 + 6^2). \\
3360 &:= 6! + 5! \times (4! - 2!) = -6^6 + 5^5 \times 4^2 + 2^4. & 23040 &:= (2! + 3! + 4!) \times 6! = 2^6 \times 3^2 \times (4^4 - 6^3). \\
3840 &:= (2! + 3! + 4!) \times 5! = 2^5 \times (3^4 + 4^3 - 5^2). & 25920 &:= (2! \times 3! + 4!) \times 6! = -2^2 \times 3^4 \times 4^3 + 6^6. \\
4170 &:= (-1! - 4! + 6!) \times 3! = -1^3 + 4^6 - 6^1 + 3^4. & 29952 &:= 3! \times (7! - 4! \times 2!) = (3^3 - 7^2 + 4^4) \times 2^7. \\
4182 &:= (1! - 4! + 6!) \times 3! = -1^3 + 4^6 + 6^1 + 3^4. & 30240 &:= (2! \times 4! - 3!) \times 6! = (2^4 + 4^2) \times (3^6 + 6^3). \\
4320 &:= (2! - 1!) \times 3! \times 6! = (-2^3 - 1^2 + 3^6) \times 6^1. & 37440 &:= 4! \times (5! + 2! \times 6!) = 4^5 \times (-5^2 + 2^4) + 6^6. \\
&= 2^1 \times (1^6 + 3^2) \times 6^3. & 43200 &:= 2! \times (4! + 3!) \times 6! = (-2^6 + 4^4) \times (3^2 + 6^3). \\
&:= (2! - 1!) \times 7! - 6! = (2^7 - 1^6 - 7^1) \times 6^2. & 46080 &:= 2! \times (8! - 4! \times 6!) = -2^8 - 8^2 - 4^4 + 6^6. \\
4326 &:= 3! \times (2! - 1! + 6!) = (3^6 - 2^3) \times 1^2 \times 6^1. & 48960 &:= 6! \times 3! \times 2! + 8! = 6^6 - 3^2 \times (2^8 - 8^3). \\
4332 &:= 1! \times 3! \times (2! + 6!) = (1^2 + 3^6 - 2^3) \times 6^1. & 69120 &:= (-2! + 3!) \times 4! \times 6! = (2^6 \times 3^2 - 4^4) \times 6^3. \\
4608 &:= 3! \times (4! \times 2! + 6!) = 3^3 \times 4^4 - 2^6 \times 6^2. & &= 2^6 \times (3^4 \times 4^2 - 6^3). \\
4800 &:= 1! \times 7! - 2! \times 5! = (-1^7 + 7^1) \times 2^5 \times 5^2. & &:= (3! - 2!) \times 6! \times 4! = 3^3 \times (2^6 \times 6^2 + 4^4). \\
5050 &:= 2! \times (3! - 1!) + 7! = (2^7 - 3^3) \times (1^1 + 7^2). & 95040 &:= (4! - 2!) \times 6! \times 3! = (4^6 - 2^4 \times 6^2) \times 3^3. \\
5058 &:= (2! + 1!) \times 3! + 7! = 2^1 \times (-1^2 + 3^7 + 7^3). & 131040 &:= (2! + 4!) \times 1! \times 7! = (-2^2 + 4^7) \times (1^4 + 7^1). \\
5136 &:= 7! + (3! - 2!) \times 4! = (7^4 - 3^7) \times (2^3 + 4^2). & 138240 &:= (2! + 3!) \times 6! \times 4! = 2^6 \times (-3^4 + 6^3) \times 4^2. \\
5178 &:= 3! \times (4! - 1!) + 7! = 3^4 \times 4^3 + 1^7 - 7^1. & 155520 &:= (2! \times 6! + 7!) \times 4! = 2^7 \times (6^4 - 7^2) - 4^6. \\
5190 &:= (1! + 4!) \times 3! + 7! = -1^7 + 4^3 \times 3^4 + 7^1. & 161280 &:= (4! + 2! + 3!) \times 7! = 4^3 \times (2^7 - 3^2 + 7^4). \\
5736 &:= (2! \times 5! - 1!) \times 4! = 2^1 \times (5^5 - 1^2 - 4^4). & & \\
7800 &:= 5! \times (4! - 1!) + 7! = 5^4 + (4^5 + 1^7) \times 7^1. & & \\
8640 &:= 1! \times 6! \times 2! \times 3! = (-1^2 + 6^1) \times 2^6 \times 3^3. & &
\end{aligned}$$

2.2.3 Five Terms Expressions

Since the number is too high, this will be dealt in next work [12].

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