

Unified Selfie Numbers

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Abstract

In previous works [2, 6, 7], the construction of Selfie numbers is done in different forms, such as in order of digits, in reverse order of digits, in increasing and decreasing orders of digits. This has been done using factorial and square-root with basic operations. In this paper, we worked with Selfie numbers having all the four ways of representations at the same time. These numbers are called "unified Selfie numbers".

1 Selfie Numbers

Numbers represented by their own digits are defined as *Selfie numbers*. There are different ways of writing *Selfie numbers* [2, 6, 7]. In this work, we shall bring *Selfie numbers* written in all the four ways. Before proceeding further here below are explanations of each type of *Selfie numbers*. This is divided in two parts.

1.1 Representations in Order of Digits and Reverse

- Order of Digits

$$24 = (2 \times \sqrt{4})!;$$

$$71 = \sqrt{7! + 1};$$

$$936 = (\sqrt{9!})^3 + 6!;$$

$$1296 = \sqrt{(1 + 2)!^9/6};$$

$$2896 = 2 \times (8 + (\sqrt{9})!! + 6!).$$

$$12969 = 1 \times 2 \times 9 \times 6! + 9.$$

- Reverse Order of Digits

$$24 = \sqrt{(4!)^2};$$

$$71 = \sqrt{1 + 7!};$$

$$936 = 6! + (3!)^{\sqrt{9}};$$

$$1296 = 6^{(\sqrt{9}+2-1)};$$

$$2896 = (6! + (\sqrt{9})!! + 8) \times 2.$$

$$20167 = 7 + (6 + 1 + 0!)/2.$$

1.2 Representations in Increasing and Decreasing Orders of Digits

- Increasing Order of Digits

$$936 = 3!! + 6^{\sqrt{9}}.$$

$$1296 = (1 + 2)! \times 6^{\sqrt{9}}.$$

$$8397 = -3 - 7! + 8!/\sqrt{9}.$$

$$573846 = -3!! - (\sqrt{4} - (5! - 6) \times 7! - 8).$$

$$241965 = (1 + (2 \times 4)! + 5) \times 6 + 9.$$

- Decreasing Order of Digits

$$936 = (\sqrt{9})!! + 6^3.$$

$$1296 = ((\sqrt{9})! \times 6)^2 \times 1.$$

$$20148 = (8! - 4)/2 - 10.$$

$$435609 = 9 + (6! - 5!/\sqrt{4})^{(3-0!)}.$$

$$13287456 = (8 + 76) \times (54^3 + (2 + 1)!).$$

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We observe that there are numbers that can be written in all the four ways, for examples,

$$936 = (\sqrt{9!})^3 + 6! = 6! + (3!)^{\sqrt{9}} = (\sqrt{9})!! + 6^3 = 3!! + 6^{\sqrt{9}}$$

$$1296 = \sqrt{(1+2)!^9/6} = 6^{(\sqrt{9}+2-1)} = ((\sqrt{9})! \times 6)^2 \times 1 = (1+2)! \times 6^{\sqrt{9}},$$

etc.

For detailed study on Selfie numbers refer to author's work [2, 6, 7]. For different kind of study on numbers refer to author's work [1, 3, 4, 5, 8, 9, 10].

Aim of this work is to bring numbers those can be written at the same time in all the four ways. We call them as "*unified Selfie numbers*". We work is only up to five digits. Study on higher digits shall be dealt else where.

2 Unified Selfie Numbers

Numbers that can be represented in all the four ways are considered as *unified Selfie numbers*, such as, 936, 1296 etc. More precisely,

$$\begin{aligned} \text{Unified Selfie number} &= \text{Order of digits} \\ &= \text{Reverse order of digits} \\ &= \text{Increasing order of digits} \\ &= \text{Decreasing order of digits.} \end{aligned}$$

Below are examples of *unified Selfie numbers*:

$$\begin{aligned} 24 &= (\sqrt{2^4})! & 143 &= -1 + 4! \times 3! \\ &= \sqrt{4!^2} & &= 3! \times 4! - 1 \\ &= (2^{\sqrt{4}})! & &= -1 + 3! \times 4! \\ &= \sqrt{4!^2}. & &= 4! \times 3! - 1. \end{aligned}$$

$$\begin{aligned} 36 &= 3! \times 6 & 145 &= 1 + 4! + 5! \\ &= 6 \times 3! & &= 5! + 4! + 1 \\ &= 3! \times 6 & &= 1 + 4! + 5! \\ &= 6 \times 3!. & &= 5! + 4! + 1. \end{aligned}$$

$$\begin{aligned} 71 &= \sqrt{7! + 1} & 216 &= \sqrt{(2+1)!^6} \\ &= \sqrt{1 + 7!} & &= 6^{1+2} \\ &= \sqrt{1 + 7!} & &= \sqrt{(1+2)!^6} \\ &= \sqrt{7! + 1}. & &= 6^{2+1}. \end{aligned}$$

$$\begin{aligned} 354 &= 3 \times (5! - \sqrt{4}) \\ &= (-\sqrt{4} + 5!) \times 3 \\ &= 3 \times (-\sqrt{4} + 5!) \\ &= (5! - \sqrt{4}) \times 3. \end{aligned}$$

$$\begin{aligned}
456 &= 4 \times (5! - 6) \\
&= (-6 + 5!) \times 4 \\
&= 4 \times (5! - 6) \\
&= (-6 + 5!) \times 4.
\end{aligned}$$

$$\begin{aligned}
693 &= 6! - 9 \times 3 \\
&= -3 \times 9 + 6! \\
&= -\sqrt{\sqrt{9^6}} + 3!! \\
&= 3!! - \sqrt{6! + 9}.
\end{aligned}$$

$$\begin{aligned}
728 &= (\sqrt{7+2})!! + 8 \\
&= 8 + (\sqrt{2+7})!! \\
&= (\sqrt{2+7})!! + 8 \\
&= 8 + (\sqrt{7+2})!!.
\end{aligned}$$

$$\begin{aligned}
729 &= (\sqrt{7+2})!! + 9 \\
&= 9 + (\sqrt{2+7})!! \\
&= (2+7)^{\sqrt{9}} \\
&= 9^{\sqrt{7+2}}.
\end{aligned}$$

$$\begin{aligned}
936 &= (\sqrt{9})!^3 + 6! \\
&= 6! + 3!^{\sqrt{9}} \\
&= 3!! + 6^{\sqrt{9}} \\
&= (\sqrt{9})!! + 6^3.
\end{aligned}$$

$$\begin{aligned}
1296 &= \sqrt{(1+2)!^9/6} \\
&= 6^{\sqrt{9+2-1}} \\
&= (1+2)! \times 6^{\sqrt{9}} \\
&= ((\sqrt{9})! \times 6)^2 \times 1.
\end{aligned}$$

$$\begin{aligned}
1432 &= 1 \times (-4 + 3!!) \times 2 \\
&= 2 \times (3!! - 4) \times 1 \\
&= 1 \times 2 \times (3!! - 4) \\
&= (-4 + 3!!) \times 2 \times 1.
\end{aligned}$$

$$\begin{aligned}
1435 &= 1 \times \sqrt{4} \times 3!! - 5 \\
&= -5 + 3!! \times \sqrt{4} \times 1 \\
&= 1 \times 3!! \times \sqrt{4} - 5 \\
&= -5 + \sqrt{4} \times 3!! \times 1.
\end{aligned}$$

$$\begin{aligned}
1463 &= -1 + 4! + 6! + 3!! \\
&= 3!! + 6! + 4! - 1 \\
&= -1 + 3!! + 4! + 6! \\
&= 6! + 4! + 3!! - 1.
\end{aligned}$$

$$\begin{aligned}
2163 &= (2+1) \times 6! + 3 \\
&= 3 + 6! \times (1+2) \\
&= 1 + 2 + 3 \times 6! \\
&= 6! \times 3 + 2 + 1.
\end{aligned}$$

$$\begin{aligned}
2167 &= (2+1) \times 6! + 7 \\
&= 7 + 6! \times (1+2) \\
&= (1+2) \times 6! + 7 \\
&= 7 + 6! \times (2+1).
\end{aligned}$$

$$\begin{aligned}
2168 &= (2+1) \times 6! + 8 \\
&= 8 + 6! \times (1+2) \\
&= (1+2) \times 6! + 8 \\
&= 8 + 6! \times (2+1).
\end{aligned}$$

$$\begin{aligned}
2169 &= (2+1) \times 6! + 9 \\
&= 9 + 6! \times (1+2) \\
&= (1+2) \times 6! + 9 \\
&= 9 + 6! \times (2+1).
\end{aligned}$$

$$\begin{aligned}
2896 &= 2 \times (8 + (\sqrt{9})!! + 6!) \\
&= (6! + (\sqrt{9})!! + 8) \times 2 \\
&= 2 \times (6! + 8 + (\sqrt{9})!!) \\
&= ((\sqrt{9})!! + 8 + 6!) \times 2.
\end{aligned}$$

$$\begin{aligned}
2954 &= 2 + (\sqrt{9} + 5!) \times 4! \\
&= 4! \times (5! + \sqrt{9}) + 2 \\
&= 2 + 4! \times (5! + \sqrt{9}) \\
&= (\sqrt{9} + 5!) \times 4! + 2.
\end{aligned}$$

$$\begin{aligned}
3125 &= (3+1 \times 2)^5 \\
&= 5^{2+1 \times 3} \\
&= (1 \times 2 + 3)^5 \\
&= 5^{3+2} \times 1.
\end{aligned}$$

$$\begin{aligned}
3456 &= 3!! \times 4/5 \times 6 \\
&= 6!/5 \times 4 \times 3! \\
&= 3!! \times 4/5 \times 6 \\
&= 6!/5 \times 4 \times 3!.
\end{aligned}$$

$$\begin{aligned}
3459 &= 3!! \times 4!/5 + \sqrt{9} \\
&= (\sqrt{9})!!/5 \times 4! + 3 \\
&= 3!! \times 4!/5 + \sqrt{9} \\
&= (\sqrt{9})!!/5 \times 4! + 3.
\end{aligned}$$

$$\begin{aligned}
3579 &= 3!! \times 5 - 7 \times \sqrt{9} \\
&= -\sqrt{9} \times 7 + 5 \times 3!! \\
&= 3!! \times 5 - 7 \times \sqrt{9} \\
&= -\sqrt{9} \times 7 + 5 \times 3!!.
\end{aligned}$$

$$\begin{aligned}
3586 &= 3!! \times 5 - 8 - 6 \\
&= -6 - 8 + 5 \times 3!! \\
&= 3!! \times 5 - 6 - 8 \\
&= -8 - 6 + 5 \times 3!!.
\end{aligned}$$

$$\begin{aligned}
3591 &= 3!! \times 5 - 9 \times 1 \\
&= -1 \times 9 + 5 \times 3!! \\
&= 1 \times 3!! \times 5 - 9 \\
&= -9 + 5 \times 3!! \times 1.
\end{aligned}$$

$$\begin{aligned}
3592 &= 3!! \times 5 - (\sqrt{9})! - 2 \\
&= -2^{\sqrt{9}} + 5 \times 3!! \\
&= -2^3 + 5 \times (\sqrt{9})!! \\
&= (\sqrt{9})!! \times 5 - 3! - 2.
\end{aligned}$$

$$\begin{aligned}
3594 &= 3!! \times 5 - \sqrt{9 \times 4} \\
&= (\sqrt{4 \times 9})! \times 5 - 3! \\
&= (3 \times \sqrt{4})! \times 5 - (\sqrt{9})! \\
&= (\sqrt{9})!! \times 5 - \sqrt{4} \times 3.
\end{aligned}$$

$$\begin{aligned}
3598 &= 3! + 5 \times (\sqrt{9})!! - 8 \\
&= -8 + (\sqrt{9})!! \times 5 + 3! \\
&= 3!! \times 5 - 8 + (\sqrt{9})! \\
&= (\sqrt{9})! - 8 + 5 \times 3!!.
\end{aligned}$$

$$\begin{aligned}
3607 &= 3!! \times (6 - 0!) + 7 \\
&= 7 + (-0! + 6) \times 3!! \\
&= (-0! + 3!) \times 6! + 7 \\
&= 7 + 6! \times (3! - 0!).
\end{aligned}$$

$$\begin{aligned}
3608 &= 3!! \times (6 - 0!) + 8 \\
&= 8 + (-0! + 6) \times 3!! \\
&= (-0! + 3!) \times 6! + 8 \\
&= 8 + 6! \times (3! - 0!).
\end{aligned}$$

$$\begin{aligned}
3609 &= 3!! \times (6 - 0!) + 9 \\
&= 9 + (-0! + 6) \times 3!! \\
&= (-0! + 3!) \times 6! + 9 \\
&= 9 + 6! \times (3! - 0!).
\end{aligned}$$

$$\begin{aligned}
3625 &= (3 + 6! + 2) \times 5 \\
&= 5 \times (2 + 6! + 3) \\
&= (2 + 3) \times (5 + 6!) \\
&= (6! + 5) \times (3 + 2).
\end{aligned}$$

$$\begin{aligned}
4296 &= (-4 + (2 \times \sqrt{9})!) \times 6 \\
&= 6 \times ((\sqrt{9} \times 2)! - 4) \\
&= 2 \times (-4 + 6!) \times \sqrt{9} \\
&= \sqrt{9} \times (6! - 4) \times 2.
\end{aligned}$$

$$\begin{aligned}
4316 &= \sqrt{4} + (3!! - 1) \times 6 \\
&= 6 \times 1 \times 3!! - 4 \\
&= (1 + 3!)! - 4 - 6! \\
&= -6! - 4 + (3! + 1)!.
\end{aligned}$$

$$\begin{aligned}
4317 &= -4 - 3!! + 1 + 7! \\
&= 7! + 1 - 3!! - 4 \\
&= 1 - 3!! - 4 + 7! \\
&= 7! - 4 - 3!! + 1.
\end{aligned}$$

$$\begin{aligned}
4319 &= (4 + 3)! - 1 - (\sqrt{9})!! \\
&= -(\sqrt{9})!! - 1 + (3 + 4)! \\
&= -1 - 3!! + (\sqrt{49})! \\
&= (\sqrt{9 \times 4})! \times 3! - 1.
\end{aligned}$$

$$\begin{aligned}
4368 &= \sqrt{4} \times 3 \times (6! + 8) \\
&= (8 + 6!) \times 3 \times \sqrt{4} \\
&= 3 \times \sqrt{4} \times (6! + 8) \\
&= (8 + 6!) \times \sqrt{4} \times 3.
\end{aligned}$$

$$\begin{aligned}
5041 &= (5 + 0 + \sqrt{4})! + 1 \\
&= 1 + (\sqrt{4} + 0 + 5)! \\
&= 0! \times 1 + (\sqrt{4} + 5)! \\
&= (5 + \sqrt{4})! + 1 \times 0!.
\end{aligned}$$

$$\begin{aligned}
5042 &= (5 + 0 + \sqrt{4})! + 2 \\
&= 2 + (\sqrt{4} + 0 + 5)! \\
&= 0! \times 2 + (\sqrt{4} + 5)! \\
&= (5 + \sqrt{4})! + 2 \times 0!.
\end{aligned}$$

$$\begin{aligned}
5043 &= (5 + 0 + \sqrt{4})! + 3 \\
&= 3 + (\sqrt{4} + 0 + 5)! \\
&= 0! \times 3 + (\sqrt{4} + 5)! \\
&= (5 + \sqrt{4})! + 3 \times 0!.
\end{aligned}$$

$$\begin{aligned}
5046 &= (5 + 0 + \sqrt{4})! + 6 \\
&= 6 + (\sqrt{4} + 0 + 5)! \\
&= 0! \times (\sqrt{4} + 5)!! + 6 \\
&= 6 + (5 + \sqrt{4})! \times 0!.
\end{aligned}$$

$$\begin{aligned}
5047 &= (5 + 0 + \sqrt{4})! + 7 \\
&= 7 + (\sqrt{4} + 0 + 5)! \\
&= 0! \times (\sqrt{4} + 5)!! + 7 \\
&= 7 + (5 + \sqrt{4})! \times 0!.
\end{aligned}$$

$$\begin{aligned}
5048 &= (5 + 0 + \sqrt{4})! + 8 \\
&= 8 + (\sqrt{4} + 0 + 5)! \\
&= 0! \times (\sqrt{4} + 5)!! + 8 \\
&= 8 + (5 + \sqrt{4})! \times 0!.
\end{aligned}$$

$$\begin{aligned}
5049 &= (5 + 0 + \sqrt{4})! + 9 \\
&= 9 + (\sqrt{4} + 0 + 5)! \\
&= 0! \times (\sqrt{4} + 5)!! + 9 \\
&= 9 + (5 + \sqrt{4})! \times 0!.
\end{aligned}$$

$$\begin{aligned}
5167 &= 5! + (1 + 6)! + 7 \\
&= 7 + (6 + 1)! + 5! \\
&= 1 + 5! + 6 + 7! \\
&= 7! + 6 + 5! + 1.
\end{aligned}$$

$$\begin{aligned}
6839 &= (6! + 8! - 3!)/(\sqrt{9})! \\
&= ((\sqrt{9})!! - 3! + 8!)/6 \\
&= (3!! - 6 + 8!)/(\sqrt{9})! \\
&= ((\sqrt{9})!! + 8! - 6)/3!.
\end{aligned}$$

$$\begin{aligned}
8632 &= -8 + 6! \times 3! \times 2 \\
&= 2 \times 3! \times 6! - 8 \\
&= 2 \times 3! \times 6! - 8 \\
&= -8 + 6 \times 3!! \times 2.
\end{aligned}$$

$$\begin{aligned}
12963 &= 1 \times 2 \times 9 \times 6! + 3 \\
&= 3 + 6! \times 9 \times 2 \times 1 \\
&= (1 + (2 \times 3)! \times 6) \times \sqrt{9} \\
&= \sqrt{9} - 6! \times (3 - 21).
\end{aligned}$$

$$\begin{aligned}
12964 &= 1 \times 2 \times 9 \times 6! + 4 \\
&= 4 + 6! \times 9 \times 2 \times 1 \\
&= 1 \times 2 \times (\sqrt{4} + 6! \times 9) \\
&= (9 \times 6! + \sqrt{4}) \times 2 \times 1.
\end{aligned}$$

$$\begin{aligned}
12967 &= 1 \times 2 \times 9 \times 6! + 7 \\
&= 7 + 6! \times 9 \times 2 \times 1 \\
&= 1 + (2 - 6! + 7!) \times \sqrt{9} \\
&= \sqrt{9} \times (7! - 6! + 2) + 1.
\end{aligned}$$

$$\begin{aligned}
12975 &= (1 + 2) \times (-(\sqrt{9})!! + 7! + 5) \\
&= (5 + 7! - (\sqrt{9})!!) \times (2 + 1) \\
&= (1 + 2) \times (5 + 7! - (\sqrt{9})!!) \\
&= \sqrt{9} \times (7! + 5 - (2 + 1)!!).
\end{aligned}$$

$$\begin{aligned}
13679 &= -1 + 3!! \times (6 + 7 + (\sqrt{9})!) \\
&= (\sqrt{9})!! \times (7 + 6 + 3!) - 1 \\
&= -1 + 3!! \times (6 + 7 + (\sqrt{9})!) \\
&= ((\sqrt{9})! + 7 + 6) \times 3!! - 1.
\end{aligned}$$

$$\begin{aligned}
14395 &= (-1 + 4 \times (-3 + 9)!) \times 5 \\
&= 5 \times ((9 - 3)! \times 4 - 1) \\
&= 1 - 3! + 4 \times 5 \times (\sqrt{9})!! \\
&= -9 + \sqrt{5!^4} + 3 + 1.
\end{aligned}$$

$$\begin{aligned}
14567 &= -1 + 4! \times (-5! + 6! + 7) \\
&= (7 + 6! - 5!) \times 4! - 1 \\
&= -1 + 4! \times (-5! + 6! + 7) \\
&= (7 + 6! - 5!) \times 4! - 1.
\end{aligned}$$

$$\begin{aligned}
14753 &= -1 + (-\sqrt{4} + 7! - 5!) \times 3 \\
&= 3 \times (-5! + 7! - \sqrt{4}) - 1 \\
&= -1 + 3 \times (-\sqrt{4} - 5! + 7!) \\
&= (7! - 5! - \sqrt{4}) \times 3 - 1.
\end{aligned}$$

$$\begin{aligned}
14759 &= 1 - \sqrt{4} + (7! - 5!) \times \sqrt{9} \\
&= (\sqrt{9} + 5!) \times (7 - \sqrt{4})! - 1 \\
&= -1^4 + (-5! + 7!) \times \sqrt{9} \\
&= \sqrt{9} \times (7! - 5 \times 4!) - 1.
\end{aligned}$$

$$\begin{aligned}
14973 &= -1 \times (49 - 7!) \times 3 \\
&= 3 \times (7! - 9) - (4 + 1)! \\
&= (1 \times 3 - 4!) \times (7 - (\sqrt{9})!!) \\
&= ((\sqrt{9})!! - 7) \times (4! - 3 \times 1).
\end{aligned}$$

$$\begin{aligned}
14975 &= -1 - 4! + \sqrt{9} \times 7! - 5! \\
&= -5! + 7! \times \sqrt{9} - 4! - 1 \\
&= -145 + 7! \times \sqrt{9} \\
&= \sqrt{9} \times 7! - 5! - 4! - 1.
\end{aligned}$$

$$\begin{aligned}
15473 &= -1 + (5! - \sqrt{4} + 7!) \times 3 \\
&= 3 \times (7! - \sqrt{4} + 5!) - 1 \\
&= -1 + 3 \times (-\sqrt{4} + 5! + 7!) \\
&= (7! + 5! - \sqrt{4}) \times 3 - 1.
\end{aligned}$$

$$\begin{aligned}
15479 &= (1 + 5!) \times \sqrt{4^7} - 9 \\
&= (9 + (7 - \sqrt{4})!) \times 5! - 1 \\
&= -1^4 + (5! + 7!) \times \sqrt{9} \\
&= ((\sqrt{9})!! - 75) \times 4! - 1.
\end{aligned}$$

$$\begin{aligned}
21456 &= (2 + 1)! \times (-4! + 5 \times 6!) \\
&= (6! \times 5 - 4!) \times (1 + 2)! \\
&= 12^4 + 5! \times 6 \\
&= (6! \times 5 - 4!) \times (2 + 1)!.
\end{aligned}$$

$$\begin{aligned}
21597 &= -2 - 1 + 5 \times (-\sqrt{9})!! + 7! \\
&= (7! - (\sqrt{9})!!) \times 5 - 1 - 2 \\
&= -1 - 2 + 5 \times (7! - (\sqrt{9})!!) \\
&= (-\sqrt{9})!! + 7! \times 5 - 2 - 1.
\end{aligned}$$

$$\begin{aligned}
23694 &= (-2 + (\sqrt{36})!) \times (9 + 4!) \\
&= (4! + 9) \times ((6 - 3)!! - 2) \\
&= (-2 + 3!!) \times (4 \times 6 + 9) \\
&= (9 + 6 \times 4) \times (3!! - 2).
\end{aligned}$$

$$\begin{aligned}
25167 &= 2 + 5 \times ((1 + 6)! - 7) \\
&= (7! - 6 - 1) \times 5 + 2 \\
&= -1 - 2 + 5 \times (-6 + 7!) \\
&= (7! - 6) \times 5 - 2 - 1.
\end{aligned}$$

$$\begin{aligned}
25173 &= -2 + 5 \times (1 + 7! - 3!) \\
&= (-3! + 7! + 1) \times 5 - 2 \\
&= -(1 + 2)^3 + 5 \times 7! \\
&= 7! \times 5 - 3! - 21.
\end{aligned}$$

$$\begin{aligned}
25174 &= -4! + 7! \times 1 \times 5 - 2 \\
&= -2 + 5 \times 1 \times 7! - 4! \\
&= -1 \times 2 - 4! + 5 \times 7! \\
&= 7! \times 5 - 4! - 2 \times 1.
\end{aligned}$$

$$\begin{aligned}
25194 &= -2 + 5 \times (1 + (\sqrt{9})!)! - 4 \\
&= -4 + ((\sqrt{9})! + 1)! \times 5 - 2 \\
&= (1 + 2 + 4!) \times 5 - (\sqrt{9})! \\
&= -(\sqrt{9})! + 5 \times (4 + 2 + 1)!.
\end{aligned}$$

$$\begin{aligned}
25197 &= 2 - 5 \times (1^9 - 7!) \\
&= 7! \times ((\sqrt{9})! - 1) - 5 + 2 \\
&= -12 + 5 \times 7! + 9 \\
&= (\sqrt{9})!! \times 7 \times 5 - 2 - 1.
\end{aligned}$$

$$\begin{aligned}
26894 &= 2 + 6 \times (8!/9 + \sqrt{4}) \\
&= 4 \times (\sqrt{9} + 8!/6) + 2 \\
&= 2 + \sqrt{4} \times (6 + 8!/\sqrt{9}) \\
&= (\sqrt{9} + 8!/6) \times 4 + 2.
\end{aligned}$$

$$\begin{aligned}
27648 &= 2^7 \times 6^{4!/8} \\
&= \sqrt{8^4} \times 6 \times 72 \\
&= 8! - (7! + 6^4) \times 2 \\
&= 2 \times \sqrt{4!^6} \times (-7 + 8).
\end{aligned}$$

$$\begin{aligned}
29374 &= -2 - (\sqrt{9})!! + 3! \times (7! - 4!) \\
&= (-4! + 7!) \times 3! - (\sqrt{9})!! - 2 \\
&= -2 + (-3! \times 4! + 7!) \times (\sqrt{9})! \\
&= (\sqrt{9})! \times (7! - 4! \times 3!) - 2.
\end{aligned}$$

$$\begin{aligned}
29376 &= (-(-2 + (\sqrt{9})!))! \times 3! + 7!) \times 6 \\
&= 6 \times (7! - (3 + 9)^2) \\
&= (-(-2 + 3!))! \times 6 + 7!) \times (\sqrt{9})! \\
&= (\sqrt{9})! \times (7! - 6!/(3 + 2)).
\end{aligned}$$

$$\begin{aligned}
30245 &= 3! \times (0! + 2 + 4)! + 5 \\
&= 5 + 42 \times (0 + 3!!) \\
&= (0! + 2)! \times (3 + 4)! + 5 \\
&= 5 + (4 + 3)! \times (2 + 0!)!.
\end{aligned}$$

$$\begin{aligned}
30246 &= 3! \times (0! + 2 + 4)! + 6 \\
&= 6 + 42 \times (0 + 3!!) \\
&= (0! + 2)! \times (3 + 4)! + 6 \\
&= 6 + (4 + 3)! \times (2 + 0!)!.
\end{aligned}$$

$$\begin{aligned}
30247 &= 3! \times (0! + 2 + 4)! + 7 \\
&= 7 + 42 \times (0 + 3!!) \\
&= (0! + 2)! \times (3 + 4)! + 7 \\
&= 7 + (4 + 3)! \times (2 + 0!)!.
\end{aligned}$$

$$\begin{aligned}
30248 &= 3! \times (0! + 2 + 4)! + 8 \\
&= 8 + 42 \times (0 + 3!!) \\
&= (0! + 2)! \times (3 + 4)! + 8 \\
&= 8 + (4 + 3)! \times (2 + 0!)!.
\end{aligned}$$

$$\begin{aligned}
30249 &= 3! \times (0! + 2 + 4)! + 9 \\
&= 9 + 42 \times (0 + 3!!) \\
&= (0! + 2)! \times (3 + 4)! + 9 \\
&= 9 + (4 + 3)! \times (2 + 0!)!.
\end{aligned}$$

$$\begin{aligned}
30968 &= 3! \times (0! + (\sqrt{9})!)! + 6! + 8 \\
&= 8 + 6! + (\sqrt{9})! \times (0! + 3!!) \\
&= (3! + 0!)! \times 6 + 8 + (\sqrt{9})!! \\
&= (\sqrt{9})!! + 8 + 6 \times (3! + 0!)!.
\end{aligned}$$

$$\begin{aligned}
31679 &= (\sqrt{9})! \times 7! + 6! - 1 + 3!! \\
&= 3!! - 1 + 6! + 7! \times (\sqrt{9})! \\
&= -1 + (3! + 6!)/(7! \times \sqrt{9}) \\
&= (\sqrt{9})! \times (7! + 6!/3) - 1.
\end{aligned}$$

$$\begin{aligned}
32784 &= ((3! - 2)^7 + 8) \times \sqrt{4} \\
&= 4! + 8! - 7!/2 \times 3 \\
&= 2 \times ((3! - \sqrt{4})^7 + 8) \\
&= 8!/7! \times (4^{3!} + 2).
\end{aligned}$$

$$\begin{aligned}
34295 &= (3 + 4^2)^{\sqrt{9}} \times 5 \\
&= 5 \times (\sqrt{9} + 2^4)^3 \\
&= (2 + 3) \times (4! - 5)^{\sqrt{9}} \\
&= 95 \times (\sqrt{4} + 3!!)/2.
\end{aligned}$$

$$\begin{aligned}
34562 &= (3 + 45) \times 6! + 2 \\
&= 2 + 6! \times (5 + 43) \\
&= 2 + (3 + 45) \times 6! \\
&= 6! \times (5 + 43) + 2.
\end{aligned}$$

$$\begin{aligned}
34567 &= (3 + 45) \times 6! + 7 \\
&= 7 + 6! \times (5 + 43) \\
&= (3 + 45) \times 6! + 7 \\
&= 7 + 6! \times (5 + 43).
\end{aligned}$$

$$\begin{aligned}
34569 &= (3 + 45) \times 6! + 9 \\
&= 9 + 6! \times (5 + 43) \\
&= (3 + 45) \times 6! + 9 \\
&= 9 + 6! \times (5 + 43).
\end{aligned}$$

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

$$\begin{aligned}
34692 &= (-3! + 4! \times (6! + \sqrt{9})) \times 2 \\
&= 2 \times ((\sqrt{9} + 6!) \times 4! - 3!) \\
&= 2 \times (-3! + 4! \times (6! + \sqrt{9})) \\
&= ((\sqrt{9} + 6!) \times 4! - 3!) \times 2.
\end{aligned}$$

$$\begin{aligned}
34986 &= 3!^{\sqrt{49}}/8 - 6 \\
&= (\sqrt{6^8} \times 9 - \sqrt{4}) \times 3 \\
&= 3 \times (-\sqrt{4} + \sqrt{6^8} \times 9) \\
&= 98 \times (6!/\sqrt{4} - 3).
\end{aligned}$$

$$\begin{aligned}
35268 &= 3! \times (5! - 2 + 6! \times 8) \\
&= (8 \times 6! - 2 + 5!) \times 3! \\
&= -(2 + 3!! + 5!) \times 6 + 8! \\
&= 8! - 6 \times (5! + 3!! + 2).
\end{aligned}$$

$$\begin{aligned}
35276 &= (3 + 5)! + 2 - 7! - 6 \\
&= -6 - 7! + 2 + (5 + 3)! \\
&= 2 + (3 + 5)! - 6 - 7! \\
&= -7! - 6 + (5 + 3)! + 2.
\end{aligned}$$

$$\begin{aligned}
35278 &= 3! + (5 + 2) \times 7! - 8 \\
&= 8! - 7! - \sqrt{25} + 3 \\
&= -2 + (3 + 5)! \times 7/8 \\
&= 8! \times 7/(5 + 3) - 2.
\end{aligned}$$

$$\begin{aligned}
35281 &= -(\sqrt{-3+52})! + 8! + 1 \\
&= 1 + 8! - (2 \times 5 - 3)! \\
&= 1 - (2 \times 3! - 5)! + 8! \\
&= 8! - (-5 + 3! \times 2)! + 1.
\end{aligned}$$

$$\begin{aligned}
35286 &= -(\sqrt{-3+52})! + 8! + 6 \\
&= 6 + 8! - (2 \times 5 - 3)! \\
&= -(2 \times 3! - 5)! + 6 + 8! \\
&= 8! + 6 - (-5 + 3! \times 2)!.
\end{aligned}$$

$$\begin{aligned}
35287 &= -(\sqrt{-3+52})! + 8! + 7 \\
&= 7 + 8! - (2 \times 5 - 3)! \\
&= 2 \times 3! - 5 - 7! + 8! \\
&= 8! - 7! - 5 + 3! \times 2.
\end{aligned}$$

$$\begin{aligned}
35289 &= -(\sqrt{-3+52})! + 8! + 9 \\
&= 9 + 8! - (2 \times 5 - 3)! \\
&= -(2 \times 3! - 5)! + 8! + 9 \\
&= 9 + 8! - (-5 + 3! \times 2)!.
\end{aligned}$$

$$\begin{aligned}
36748 &= -3!! - (6! - 7) \times 4 + 8! \\
&= 8! - 4 \times (-7 + 6!) - 3!! \\
&= -3!! - 4 \times (6! - 7) + 8! \\
&= 8! + (7 - 6!) \times 4 - 3!!.
\end{aligned}$$

$$\begin{aligned}
36758 &= 3 - (6! - 7) \times 5 + 8! \\
&= 8! - 5 \times (-7 + 6!) + 3 \\
&= 3 - 5 \times (6! - 7) + 8! \\
&= 8! + (7 - 6!) \times 5 + 3.
\end{aligned}$$

$$\begin{aligned}
39456 &= (3!! \times 9 - 4! + 5!) \times 6 \\
&= 6 \times (5! - 4! + 9 \times 3!!) \\
&= 3! \times (-4! + 5! + 6! \times 9) \\
&= (9 \times 6! + 5! - 4!) \times 3!.
\end{aligned}$$

$$\begin{aligned}
39478 &= 3! - (\sqrt{9})!! - \sqrt{4^7} + 8! \\
&= 8! - (7! + 4 \times \sqrt{9})/3! \\
&= 3! - \sqrt{4^7} + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})! + 8! - (7! - 4!)/3!.
\end{aligned}$$

$$\begin{aligned}
39481 &= -3!! - (9 - 4)! + 8! + 1 \\
&= 1 + 8! - (\sqrt{49})!/3! \\
&= 1 - (3 + \sqrt{4})! + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! - (\sqrt{4} + 3)! + 1.
\end{aligned}$$

$$\begin{aligned}
39482 &= -3!! - (9 - 4)! + 8! + 2 \\
&= 2 + 8! - (\sqrt{49})!/3! \\
&= 2 - (3 + \sqrt{4})! + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! - (\sqrt{4} + 3)! + 2.
\end{aligned}$$

$$\begin{aligned}
39485 &= -3!! - (9 - 4)! + 8! + 5 \\
&= 5 + 8! - (\sqrt{49})!/3! \\
&= -3!! - 4 - 5! + 8! + 9 \\
&= 9 + 8! - 5! - 4 - 3!!.
\end{aligned}$$

$$\begin{aligned}
39486 &= -3!! - (9 - 4)! + 8! + 6 \\
&= 6 + 8! - (\sqrt{49})!/3! \\
&= -(3 + 4)!/6 + 8! + (\sqrt{9})! \\
&= \sqrt{9^8} \times 6 + (\sqrt{4} + 3)!.
\end{aligned}$$

$$\begin{aligned}
39487 &= -3!! - (9 - 4)! + 8! + 7 \\
&= 7 + 8! - (\sqrt{49})!/3! \\
&= -(3 + \sqrt{4})! + 7 + 8! - (\sqrt{9})!! \\
&= \sqrt{9} + 8! - (7! - 4!)/3!.
\end{aligned}$$

$$\begin{aligned}
39564 &= -3!! + (\sqrt{9} + 5)! - \sqrt{6^4} \\
&= (\sqrt{4} + 6)! - (5! + (\sqrt{9})!) \times 3! \\
&= (3! + \sqrt{4})! - (5! + 6) \times (\sqrt{9})! \\
&= -(\sqrt{9})! \times (6 + 5!) + (\sqrt{4^3})!.
\end{aligned}$$

$$\begin{aligned}
39578 &= -3!! - \sqrt{9} \times 5 - 7 + 8! \\
&= 8! - 7 - 5 \times \sqrt{9} - 3!! \\
&= -3 \times 5 - 7 + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! - 7 - 5 \times 3.
\end{aligned}$$

$$\begin{aligned}
39581 &= -1 + 8! - (5! + \sqrt{9}) \times 3! \\
&= -3! \times (\sqrt{9} + 5!) + 8! - 1 \\
&= -(1 + 3)! + 5 + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! + 5 - (3 + 1)!.
\end{aligned}$$

$$\begin{aligned}
39582 &= -3! \times (\sqrt{9} + 5!) + (\sqrt{8^2})! \\
&= 2 + 8! - 5!/(\sqrt{9})! - 3!! \\
&= -23 + 5 + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! - 5!/3! + 2.
\end{aligned}$$

$$\begin{aligned}
39584 &= 3 - (\sqrt{9})!! + (5 + 8!) - 4! \\
&= -\sqrt{4} + 8! - 5 - 9^3 \\
&= -3!! - \sqrt{4} + 5 + 8! - 9 \\
&= 9 + 8! - \sqrt{5^4} - 3!!.
\end{aligned}$$

$$\begin{aligned}
39586 &= -3 \times \sqrt{9} - 5 + 8! - 6! \\
&= -6! + 8! - 5 - \sqrt{9} \times 3 \\
&= (3 + 5)! - 6 - 8 - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! - 6 - 5 - 3.
\end{aligned}$$

$$\begin{aligned}
39587 &= -3! - (\sqrt{9})! \times 5! + 8! - 7 \\
&= -7 + 8! - 5! \times (\sqrt{9})! - 3! \\
&= -3! \times 5! - 7 + 8! - (\sqrt{9})! \\
&= -(\sqrt{9})! + 8! - 7 - 5! \times 3!.
\end{aligned}$$

$$\begin{aligned}
39618 &= 3 \times (\sqrt{9})! - 6! + 1 \times 8! \\
&= 8! - 1 \times 6! + \sqrt{9} \times 3! \\
&= 1 \times 3 \times 6 + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! + 6 \times 3 \times 1.
\end{aligned}$$

$$\begin{aligned}
39624 &= -(-3 + 9)! + (6 + 2)! + 4! \\
&= 4! + (2 + 6)! - (9 - 3)! \\
&= (2^3)! + 4 \times 6 - (\sqrt{9})!! \\
&= -(9 - 6)!! + 4! + (3! + 2)!.
\end{aligned}$$

$$\begin{aligned}
39678 &= -3!! + (\sqrt{9})! \times (6 + 7) + 8! \\
&= 8! + (7 + 6) \times (\sqrt{9})! - 3!! \\
&= 3! \times (6 + 7) + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! + (7 + 6) \times 3!.
\end{aligned}$$

$$\begin{aligned}
39754 &= -3! + (9! - 7!)/(5 + 4) \\
&= ((4 + 5)! - 7!)/9 - 3! \\
&= -3! + ((4 + 5)! - 7!)/9 \\
&= (9! - 7!)/(5 + 4) - 3!.
\end{aligned}$$

$$\begin{aligned}
39768 &= ((3!! - 9) \times 7 - 6) \times 8 \\
&= 8 \times (-6 + 7 \times (-9 + 3!!)) \\
&= (3 + 6!) \times 7 \times 8 - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8 \times 7 \times (6! + 3).
\end{aligned}$$

$$\begin{aligned}
39816 &= (3!! - 9) \times 8 \times (1 + 6) \\
&= (6 + 1) \times 8 \times (-9 + 3!!) \\
&= \sqrt{(1 \times 3)!^6} + 8! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 8! + 6^3 \times 1.
\end{aligned}$$

$$\begin{aligned}
41036 &= -4 + ((1 + 0!)^3)! + 6! \\
&= 6! + (3! + 0! + 1)! - 4 \\
&= (0! + 1 + 3!)! - 4 + 6! \\
&= 6! - 4 + (3! + 1 + 0!)!.
\end{aligned}$$

$$\begin{aligned}
41038 &= (4 - 1)!! + 0! - 3 + 8! \\
&= 8! + 3!! + 0! + 1 - 4 \\
&= 0! + 1 + 3!! - 4 + 8! \\
&= 8! - 4 + 3!! + 1 + 0!.
\end{aligned}$$

$$\begin{aligned}
41768 &= 1 + \sqrt{4} \times 6! + 7 + 8! \\
&= 8 \times (7! + 6!/4 + 1) \\
&= \sqrt{4} \times (-1 + 7)! + 8! + 4! \\
&= 4! + 8! + (7 - 1)! \times \sqrt{4}.
\end{aligned}$$

$$\begin{aligned}
42368 &= 4 \times 2^{3+6} + 8! \\
&= 8! + \sqrt{(6/3)^{(-2+4!)}} \\
&= 2^{3+\sqrt{4+6}} + 8! \\
&= 8! + 64 \times 32.
\end{aligned}$$

$$\begin{aligned}
43195 &= 4 \times 3!! + (-1 + 9)! - 5 \\
&= -5 + (9 - 1)! + 3!! \times 4 \\
&= 1 + 3!!/\sqrt{4} \times 5! - (\sqrt{9})! \\
&= \sqrt{9} \times \sqrt{5!^4} - 3! + 1.
\end{aligned}$$

$$\begin{aligned}
43198 &= 4 \times 3!! + 1 - \sqrt{9} + 8! \\
&= 8! - \sqrt{9} + 1 + 3!! \times 4 \\
&= 1 + 3!! \times 4 + 8! - \sqrt{9} \\
&= -\sqrt{9} + 8! + 4 \times 3!! + 1.
\end{aligned}$$

$$\begin{aligned}
43896 &= -4! - 3!! + 8! + (\sqrt{9})! \times 6! \\
&= (69 - 8) \times 3!! - 4! \\
&= (3!! + 4!) \times (68 - 9) \\
&= 9!/8 - 6! - 4! - 3!!.
\end{aligned}$$

$$\begin{aligned}
43965 &= (\sqrt{4^3})! + \sqrt{9^6} \times 5 \\
&= 5 \times (6! + 9) + (3! + \sqrt{4})! \\
&= (3! + \sqrt{4})! + 5 \times (6! + 9) \\
&= \sqrt{9^6} \times 5 + (4!/3)!.
\end{aligned}$$

$$\begin{aligned}
45279 &= -(4 + 5)^2 + 7! \times 9 \\
&= 9 \times 7! - (-2 + 5)^4 \\
&= (2^{\sqrt{4}} + 5) \times (7! - 9) \\
&= 9 \times 7! - (5 + 4)^2.
\end{aligned}$$

$$\begin{aligned}
45297 &= (4 + 5) \times (2 - 9 + 7!) \\
&= (7! - 9 + 2) \times (5 + 4) \\
&= (2 - 4 - 5 + 7!) \times 9 \\
&= 9 \times (-7 + 5! \times 42).
\end{aligned}$$

$$\begin{aligned}
45361 &= (\sqrt{4} + 5)! \times (3 + 6) + 1 \\
&= 1 + 63 \times (\sqrt{5 + 4})!! \\
&= 1 + 3!!/\sqrt{4} \times (5! + 6) \\
&= (65 - \sqrt{4}) \times 3!! + 1.
\end{aligned}$$

$$\begin{aligned}
45362 &= (\sqrt{4} + 5)! \times (3 + 6) + 2 \\
&= 2 + 63 \times (\sqrt{5 + 4})!! \\
&= 2 + 3!!/\sqrt{4} \times (5! + 6) \\
&= (65 - \sqrt{4}) \times 3!! + 2.
\end{aligned}$$

$$\begin{aligned}
45367 &= (\sqrt{4} + 5)! \times (3 + 6) + 7 \\
&= 7 + 63 \times (\sqrt{5 + 4})!! \\
&= 3!!/\sqrt{4} \times (5! + 6) + 7 \\
&= 7 + (65 - \sqrt{4}) \times 3!!.
\end{aligned}$$

$$\begin{aligned}
45369 &= (\sqrt{4} + 5)! \times (3 + 6) + 9 \\
&= 9 + 63 \times (\sqrt{5 + 4})!! \\
&= ((3 + 4)! - 5 + 6) \times 9 \\
&= 9 \times (6 - 5 + (4 + 3)!).
\end{aligned}$$

$$\begin{aligned}
45378 &= (4 + 5) \times (-3! + 7! + 8) \\
&= (8 + 7! - 3!) \times (5 + 4) \\
&= 3 \times (\sqrt{4 + 5})! + 7! + 8! \\
&= 8! + 7! + 54/3.
\end{aligned}$$

$$\begin{aligned}
45379 &= 4 + 5 \times 3 + 7! \times 9 \\
&= 9 \times 7! + 3 \times 5 + 4 \\
&= 3! \times 4 - 5 + 7! \times 9 \\
&= 9 \times (7! - 5) + 4^3.
\end{aligned}$$

$$\begin{aligned}
45387 &= (4 + 5) \times 3 + 8! + 7! \\
&= 7! + 8! + 3 \times (5 + 4) \\
&= 3 \times (4 + 5) + 7! + 8! \\
&= 8! + 7! + (5 + 4) \times 3.
\end{aligned}$$

$$\begin{aligned}
45397 &= \sqrt{4} + (5 + 3!! \times 9) \times 7 \\
&= 7! \times 9 + 35 + \sqrt{4} \\
&= -3! - \sqrt{4} + (5 + 7!) \times 9 \\
&= 9 \times (7! + 5) - \sqrt{4^3}.
\end{aligned}$$

$$\begin{aligned}
45679 &= 4 + (5 + 6!) \times 7 \times 9 \\
&= 9 \times 7 \times (6! + 5) + 4 \\
&= 4 + (5 + 6!) \times 7 \times 9 \\
&= 9 \times 7 \times (6! + 5) + 4.
\end{aligned}$$

$$\begin{aligned}
45837 &= 4 \times 5! + 8! - 3 + 7! \\
&= 7! - 3 + 8! + 5! \times 4 \\
&= -3 + 4 \times 5! + 7! + 8! \\
&= 8! + 7! + 5! \times 4 - 3.
\end{aligned}$$

$$\begin{aligned}
45936 &= (45 - 9)^3 - 6! \\
&= 6^{3!} - (9 - \sqrt{5 + 4})! \\
&= (3 - 4 - 5)^6 - (\sqrt{9})!! \\
&= (96 + 5!)^{\sqrt{4}} - 3!!
\end{aligned}$$

$$\begin{aligned}
46137 &= \sqrt{4^6} \times (1 + 3!!) - 7 \\
&= -7 + (3!! + 1) \times 64 \\
&= (1 + 3!!) \times \sqrt{4^6} - 7 \\
&= -7 + 64 \times (3!! + 1).
\end{aligned}$$

$$\begin{aligned}
46793 &= 4! \times 6 - 7 + (\sqrt{9})!^{3!} \\
&= 3!! \times 9 - 7 + (\sqrt{64})! \\
&= 3!! \times \sqrt{4^6} - 7 + (\sqrt{9})!! \\
&= (\sqrt{9})!! - 7 + 6! \times 4^3.
\end{aligned}$$

$$\begin{aligned}
46798 &= -\sqrt{4} + 6! \times (-7 + 9 \times 8) \\
&= (8 \times 9 - 7) \times 6! - \sqrt{4} \\
&= -\sqrt{4} + 6! \times (-7 + 8 \times 9) \\
&= (9 \times 8 - 7) \times 6! - \sqrt{4}.
\end{aligned}$$

$$\begin{aligned}
48961 &= 4 \times (8 + 9) \times 6! + 1 \\
&= 1 + 6! \times (9 \times 8 - 4) \\
&= 1 + 4 \times 6! \times (8 + 9) \\
&= (9 + 8) \times 6! \times 4 + 1.
\end{aligned}$$

$$\begin{aligned}
48962 &= 4 \times (8 + 9) \times 6! + 2 \\
&= 2 + 6! \times (9 \times 8 - 4) \\
&= 2 + 4 \times 6! \times (8 + 9) \\
&= (9 + 8) \times 6! \times 4 + 2.
\end{aligned}$$

$$\begin{aligned}
48963 &= 4 \times (8 + 9) \times 6! + 3 \\
&= 3 + 6! \times (9 \times 8 - 4) \\
&= 3 + 4 \times 6! \times (8 + 9) \\
&= (9 + 8) \times 6! \times 4 + 3.
\end{aligned}$$

$$\begin{aligned}
49152 &= 4! \times (\sqrt{9} + 1)^5 \times 2 \\
&= \sqrt{2^{(5-1)!} \times 9} \times 4 \\
&= (1 + 2) \times \sqrt{4^{5+9}} \\
&= \sqrt{(\sqrt{9})!!/5} \times 4^{(2+1)!}.
\end{aligned}$$

$$\begin{aligned}
49536 &= 4 \times (\sqrt{9})! \times 5! + 3!^6 \\
&= 6^{3!} + 5! \times (\sqrt{9})! \times 4 \\
&= 3! \times (-4! + 5! \times 69) \\
&= (\sqrt{9})! \times 6^5 + 4 \times 3!!
\end{aligned}$$

$$\begin{aligned}
49678 &= -\sqrt{4} + (\sqrt{9})!! \times (6 + 7) + 8! \\
&= 8! + (7 + 6) \times (\sqrt{9})!! - \sqrt{4} \\
&= -\sqrt{4} + 6! \times (78 - 9) \\
&= 9!/8 + 7! - 6! - \sqrt{4}.
\end{aligned}$$

$$\begin{aligned}
57648 &= (-5 + 7 + 6!) \times 4! + 8! \\
&= 8! + 4! \times (6! + 7 - 5) \\
&= 4! \times (-5 + 6 + \sqrt{7^8}) \\
&= 8! + (7 + 6! - 5) \times 4!.
\end{aligned}$$

$$\begin{aligned}
69837 &= 6! \times (\sqrt{9})!!/8 - 3 + 7! \\
&= 7! \times (3! + 8) - \sqrt{9} - 6! \\
&= -3 - 6! + 7! \times (8 + (\sqrt{9})!) \\
&= ((\sqrt{9})! + 8) \times 7! - 6! - 3.
\end{aligned}$$

$$\begin{aligned}
80641 &= 8! \times (0 + 6 - 4) + 1 \\
&= 1 + (-4 + 6) \times (0 + 8!) \\
&= 0! \times 1 + (-4 + 6) \times 8! \\
&= 8! \times (6 - 4) + 1 \times 0!.
\end{aligned}$$

$$\begin{aligned}
80642 &= 8! \times (0 + 6 - 4) + 2 \\
&= 2 + (-4 + 6) \times (0 + 8!) \\
&= 0! \times 2 + (-4 + 6) \times 8! \\
&= 8! \times (6 - 4) + 2 \times 0!.
\end{aligned}$$

$$\begin{aligned}
80643 &= 8! \times (0 + 6 - 4) + 3 \\
&= 3 + (-4 + 6) \times (0 + 8!) \\
&= 0! \times 3 + (-4 + 6) \times 8! \\
&= 8! \times (6 - 4) + 3 \times 0!.
\end{aligned}$$

$$\begin{aligned}
80652 &= 2 \times (5 + (6 \times 0)! + 8!) \\
&= (8! + (0/6)! + 5) \times 2 \\
&= (-0! - 2 + 5) \times (6 + 8!) \\
&= (8! + 6) \times (5 - 2 - 0!).
\end{aligned}$$

$$\begin{aligned}
81359 &= 8! - 1 + 3!! + (5 + \sqrt{9})! \\
&= (\sqrt{9} + 5)! + 3!! - 1 + 8! \\
&= -1 + (-3 + 5) \times 8! + (\sqrt{9})!! \\
&= (9! + 8!)/5 + 3!! - 1.
\end{aligned}$$

$$\begin{aligned}
81374 &= (1 \times 3!)! + \sqrt{4} \times (7 + 8!) \\
&= (8! + 7) \times \sqrt{4} + 3!! \times 1 \\
&= 8! + 1 \times 3!! + 8! + 4! \\
&= 4! + 8! + 3!! + 1 \times 8!.
\end{aligned}$$

$$\begin{aligned}
83157 &= -8 + (3! + 1)! + 5^7 \\
&= 7! + 5^{1+3!} - 8 \\
&= (1 + 3!)! + 5^7 - 8 \\
&= -8 + 7! + 5^{3!+1}.
\end{aligned}$$

$$\begin{aligned}
84965 &= 8! \times \sqrt{4} + (\sqrt{9})! \times 6! + 5 \\
&= 5 + 6 \times (\sqrt{9})!! + \sqrt{4} \times 8! \\
&= (-\sqrt{4} + 5!) \times 6! + 8 - \sqrt{9} \\
&= -\sqrt{9} + 8 + 6! \times (5! - \sqrt{4}).
\end{aligned}$$

$$\begin{aligned}
85679 &= 8! + 5 - 6 + 7! \times 9 \\
&= 9 \times 7! - 6 + 5 + 8! \\
&= 5 - 6 + 7! \times (8 + 9) \\
&= (9 + 8) \times 7! - 6 + 5.
\end{aligned}$$

$$\begin{aligned}
86152 &= (-8 + 6!) \times (-1 + 5! + 2) \\
&= ((\sqrt{25})! + 1) \times (6! - 8) \\
&= (1^2 + 5!) \times (6! - 8) \\
&= (-8 + 6!) \times (5! + 2 - 1).
\end{aligned}$$

$$\begin{aligned}
86351 &= -8 \times 6 + 3!! \times 5! - 1 \\
&= -1 + 5! \times 3!! - 6 \times 8 \\
&= -1 + 3!! \times 5! - 6 \times 8 \\
&= -8 \times 6 + 5! \times 3!! - 1.
\end{aligned}$$

$$\begin{aligned}
86352 &= -8 \times 6 + 3! \times 5!^2 \\
&= (\sqrt{25})! \times 3!! - 6 \times 8 \\
&= (2 \times 3)! \times 5! - 6 \times 8 \\
&= -8 \times 6 + 5! \times (3 \times 2)! .
\end{aligned}$$

$$\begin{aligned}
86391 &= -8 + 6!/3! \times (\sqrt{9})!! - 1 \\
&= -1 + (\sqrt{9})!!/3! \times 6! - 8 \\
&= (-1 + 3!)! \times \left(\sqrt{\sqrt{\sqrt{6^8}}} \right)! - 9 \\
&= -9!/8! + 6! \times (3! - 1)!.
\end{aligned}$$

$$\begin{aligned}
86392 &= -8 + 6! \times (\sqrt{3 \times 9 - 2})! \\
&= (2 + 9/3)! \times 6! - 8 \\
&= -2^3 + 6! \times (8 - \sqrt{9})! \\
&= (-\sqrt{9} + 8)! \times 6! - 3! - 2.
\end{aligned}$$

$$\begin{aligned}
86394 &= -8 + 6!/3! \times (\sqrt{9})!! + \sqrt{4} \\
&= 4^{\sqrt{9}} \times 3!! - 6 + 8! \\
&= -3! + 4! \times 6! \times (8 - \sqrt{9}) \\
&= -(\sqrt{9})! + 8! + 64 \times 3!!.
\end{aligned}$$

$$\begin{aligned}
86395 &= 8 \times 6! \times (3! + 9) - 5 \\
&= -5 + (9 + 3!) \times 6! \times 8 \\
&= 3!! \times 5! - 6 - 8 + 9 \\
&= 9 - 8 + 6! \times 5! - 3!.
\end{aligned}$$

$$\begin{aligned}
86397 &= 8! + 6! - 3 + 9 \times 7! \\
&= 7! \times 9 + (-3 + 6!) + 8! \\
&= -3 + 6! + 7! \times (8 + 9) \\
&= (9 + 8) \times 7! + 6! - 3.
\end{aligned}$$

$$\begin{aligned}
91573 &= ((\sqrt{9})!! + 1) \times (5! + 7) + 3! \\
&= 3! + (7 + 5!) \times (1 + (\sqrt{9})!!) \\
&= (1 + 3!!) \times (5! + 7) + (\sqrt{9})! \\
&= (\sqrt{9})! + (7 + 5!) \times (3!! + 1).
\end{aligned}$$

$$\begin{aligned}
93264 &= ((\sqrt{9})!^{3!} - (-2 + 6)!) \times \sqrt{4} \\
&= \sqrt{4} \times (-(6 - 2)! + 3!^{(\sqrt{9})!}) \\
&= 2 \times (-3! \times 4 + 6^{(\sqrt{9})!}) \\
&= ((\sqrt{9})!^6 - 4 \times 3!) \times 2.
\end{aligned}$$

$$\begin{aligned}
93546 &= ((\sqrt{9})!^{3!} + 5!) \times \sqrt{4} - 6 \\
&= -6 + \sqrt{4} \times (5! + 3!^{(\sqrt{9})!}) \\
&= (-34 + 5^6) \times (\sqrt{9})! \\
&= ((\sqrt{9})!^6 + 5!) \times \sqrt{4} - 3!.
\end{aligned}$$

$$\begin{aligned}
95761 &= (\sqrt{9})!! \times (5! + 7 + 6) + 1 \\
&= 1 + (6 + 7 + 5!) \times (\sqrt{9})!! \\
&= 1 + (5! + 6 + 7) \times (\sqrt{9})!! \\
&= (\sqrt{9})!! \times (7 + 6 + 5!) + 1.
\end{aligned}$$

$$\begin{aligned}
95762 &= (\sqrt{9})!! \times (5! + 7 + 6) + 2 \\
&= 2 + (6 + 7 + 5!) \times (\sqrt{9})!! \\
&= 2 + (5! + 6 + 7) \times (\sqrt{9})!! \\
&= (\sqrt{9})!! \times (7 + 6 + 5!) + 2.
\end{aligned}$$

$$\begin{aligned}
95763 &= (\sqrt{9})!! \times (5! + 7 + 6) + 3 \\
&= 3 + (6 + 7 + 5!) \times (\sqrt{9})!! \\
&= 3 + (5! + 6 + 7) \times (\sqrt{9})!! \\
&= (\sqrt{9})!! \times (7 + 6 + 5!) + 3.
\end{aligned}$$

$$\begin{aligned}
95764 &= (\sqrt{9})!! \times (5! + 7 + 6) + 4 \\
&= 4 + (6 + 7 + 5!) \times (\sqrt{9})!! \\
&= 4 + (5! + 6 + 7) \times (\sqrt{9})!! \\
&= (\sqrt{9})!! \times (7 + 6 + 5!) + 4.
\end{aligned}$$

$$\begin{aligned}
95784 &= ((\sqrt{9})! + 5) \times 7! + 8! + 4! \\
&= 4! + 8! + 7! \times (5 + (\sqrt{9})!) \\
&= (4! - 5) \times 7! + 8 \times \sqrt{9} \\
&= \sqrt{9} \times 8 + 7! \times (-5 + 4!).
\end{aligned}$$

$$\begin{aligned}
97632 &= -(\sqrt{9})!! + 7! + 6^{3!} \times 2 \\
&= 2 \times 3!^6 + 7! - (\sqrt{9})!! \\
&= 2 \times 3!^6 + 7! - (\sqrt{9})!! \\
&= -(\sqrt{9})!! + 7! + 6^{3!} \times 2.
\end{aligned}$$

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