Single Digit Representations of Natural Numbers

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ABSTRACT. In this work, we established symmetric representation of numbers where one can use any of 9 digits giving the same number. The representations of natural numbers from 0 to 1000 are given using only single digit in all the nine cases, i.e., 1, 2, 3, 4, 5, 6, 7, 8 and 9. This is done only using basic operations: addition, subtraction, multiplication, potentiation, division.

1. Introduction

Let a be a single digit positive natural numbers, i.e, $a \in \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$. We can always write

$$0 = a - a;$$

$$1 = \frac{a}{a};$$

$$2 = \frac{a + a}{a};$$

$$3 = \frac{a + a + a}{a};$$

$$4 = \frac{a + a + a + a + a}{a};$$

$$5 = \frac{a + a + a + a + a + a}{a};$$

$$6 = \frac{a + a + a + a + a + a + a}{a};$$

. . .

We observe that as number increases, one need more digits to write. But it is not true, for example to write 10, we can write as $10 = 11 - 1 = 2 \times 2 \times 2 + 2$. Here we need only 3 digits for 1 and four digits for 2.

Author [7] studied representations of natural numbers using the digits from 1 to 9 in increasing and decreasing orders. For comments see [1, 2, 5, 6]. Historical study of numbers and their properties can be found in [3, 4]. Study of numbers in little different way calling "selfie numbers" is given by author [8].

The aim of this work is to write natural numbers from 0 to 1000 in terms of each digits 1, 2, 3, 4, 5, 6, 7, 8 and 9, with "as less as possible digits", using only the basic operations:

[addition, subtraction, multiplication, division, potentiation].

Before proceeding further, here below ares some numbers that can be represented in a symmetric way using any of 9 digits from 1 to 9.

2. Symmetrical Relations

Let us consider a series:

$$f^{n}(10) = 10^{n} + 10^{n-1} + ... + 10^{2} + 10 + 10^{0}$$

then we can write

$$af^n(10) = \underbrace{aaa...a}_{(n+1)-times},$$

where $a \in \{1, 2, 3, 4, 5, 6, 7, 8, 9\}.$

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In particular for n = 3, we have

 $f^{3}(10) = a10^{3} + a10^{2} + a10 + a = aaaa.$

Then,

$$5 = \frac{af^{1}(10) - a}{a + a} = \frac{aa - a}{a + a},$$

$$55 = \frac{af^2(10) - a}{a + a} = \frac{aaa - a}{a + a}$$

And

$$6 = \frac{af^{1}(10) + a}{a + a} = \frac{aa + a}{a + a},$$

$$56 = \frac{af^2(10) - a}{a + a} = \frac{aaa + a}{a + a}.$$

Equivalently, one can write the following symmetric representations

$$5 = \frac{11-1}{1+1} = \frac{22-2}{2+2} = \frac{33-3}{3+3} = \frac{44-4}{4+4} = \frac{55-5}{5+5} = \frac{66-6}{6+6} = \frac{77-7}{7+7} = \frac{88-8}{8+8} = \frac{99-9}{9+9};$$

$$55 = \frac{111 - 1}{1 + 1} = \frac{222 - 2}{2 + 2} = \frac{333 - 3}{3 + 3} = \frac{444 - 4}{4 + 4} = \frac{555 - 5}{5 + 5} = \frac{666 - 6}{6 + 6} = \frac{777 - 7}{7 + 7} = \frac{888 - 8}{8 + 8} = \frac{999 - 9}{9 + 9};$$

. . .

$$6 = \frac{11+1}{1+1} = \frac{22+2}{2+2} = \frac{33+3}{3+3} = \frac{44+4}{4+4} = \frac{55+5}{5+5} = \frac{66+6}{6+6} = \frac{77+7}{7+7} = \frac{88+8}{8+8} = \frac{99+9}{9+9};$$

$$56 = \frac{111+1}{1+1} = \frac{222+2}{2+2} = \frac{333+3}{3+3} = \frac{444+4}{4+4} = \frac{555+5}{5+5} = \frac{666+6}{6+6} = \frac{777+7}{7+7} = \frac{888+8}{8+8} = \frac{999+9}{9+9};$$

. . .

Following the same procedure, we have more symmetries, such as,

$$11 = \frac{22}{2} = \frac{33}{3} = \frac{44}{4} = \frac{55}{5} = \frac{66}{6} = \frac{77}{7} = \frac{88}{8} = \frac{99}{9};$$

$$11 = \frac{22 + 22}{2 + 2} = \frac{33 + 33}{3 + 3} = \frac{44 + 44}{4 + 4} = \frac{55 + 55}{5 + 5} = \frac{66 + 66}{6 + 6} = \frac{77 + 77}{7 + 7} = \frac{88 + 88}{8 + 8} = \frac{99 + 99}{9 + 9};$$

$$37 = \frac{111}{1+1+1} = \frac{222}{2+2+2} = \frac{333}{3+3+3} = \frac{444}{4+4+4} = \frac{555}{5+5+5}$$

$$=\frac{666}{6+6+6}=\frac{777}{7+7+7}=\frac{888}{8+8+8}=\frac{999}{9+9+9};$$

$$100 = \frac{111 - 11}{1 + 1} = \frac{222 - 22}{2 + 2} = \frac{333 - 33}{3 + 3} = \frac{444 - 44}{4 + 4} = \frac{555 - 55}{5 + 5}$$

$$=\frac{666-66}{6+6}=\frac{777-77}{7+7}=\frac{888-88}{8+8}=\frac{999-99}{9+9};$$

$$101 = \frac{1111}{11} = \frac{2222}{22} = \frac{3333}{33} = \frac{4444}{44} = \frac{5555}{55} = \frac{6666}{66} = \frac{7777}{77} = \frac{8888}{88} = \frac{9999}{99};$$

$$111 = \frac{222}{2} = \frac{333}{3} = \frac{444}{4} = \frac{555}{5} = \frac{666}{6} = \frac{777}{7} = \frac{888}{8} = \frac{999}{9};$$

$$925 = \frac{11111 - 11}{11 + 1} = \frac{22222 - 22}{22 + 2} = \frac{33333 - 33}{33 + 3} = \frac{44444 - 44}{44 + 4} = \frac{55555 - 55}{55 + 5}$$

$$= \frac{66666 - 66}{66 + 6} = \frac{77777 - 77}{77 + 7} = \frac{88888 - 88}{88 + 8} = \frac{99999 - 99}{99 + 9};$$

$$926 = \frac{11111 + 1}{11 + 1} = \frac{22222 + 2}{22 + 2} = \frac{33333 + 3}{33 + 3} = \frac{44444 + 4}{44 + 4} = \frac{55555 + 5}{55 + 5}$$

$$= \frac{66666 + 6}{66 + 6} = \frac{77777 + 7}{77 + 7} = \frac{88888 + 8}{88 + 8} = \frac{99999 + 9}{99 + 9};$$

. . .

In some cases, one has different symmetries:

$$1 = \frac{2 \times 2}{2 + 2}, \quad 2 = \frac{4 \times 4}{4 + 4}, \quad 3 = \frac{6 \times 6}{6 + 6}, \quad 4 = \frac{8 \times 8}{8 + 8},$$

$$0 = \frac{1 \times 1 - 1}{1 + 1}, \quad 1 = \frac{3 \times 3 - 3}{3 + 3}, \quad 2 = \frac{5 \times 5 - 5}{5 + 5}, \quad 3 = \frac{7 \times 7 - 7}{7 + 7}, \quad 4 = \frac{9 \times 9 - 9}{9 + 9}.$$

$$1 = \frac{1 \times 1 + 1}{1 + 1}, \quad 2 = \frac{3 \times 3 + 3}{3 + 3}, \quad 3 = \frac{5 \times 5 + 5}{5 + 5}, \quad 4 = \frac{7 \times 7 + 7}{7 + 7}, \quad 5 = \frac{9 \times 9 + 9}{9 + 9}.$$

$$222 = 111 + \frac{111}{1}, \quad 333 = 222 + \frac{222}{2}, \quad 444 = 333 + \frac{333}{3}, \quad 555 = 444 + \frac{444}{4}.$$

$$666 = 555 + \frac{555}{5}, \quad 777 = 666 + \frac{666}{6}, \quad 888 = 777 + \frac{777}{7}, \quad 999 = 888 + \frac{888}{8}.$$

$$212 = 111 + \frac{1111}{11}, \quad 323 = 222 + \frac{2222}{22}, \quad 434 = 333 + \frac{3333}{33}, \quad 545 = 444 + \frac{4444}{44}.$$

$$656 = 555 + \frac{5555}{55}, \quad 767 = 666 + \frac{6666}{66}, \quad 878 = 777 + \frac{7777}{77}, \quad 989 = 888 + \frac{8888}{88}.$$

The above symmetric expressions are beautiful to see, but the number of digits used are not necessarily minimum number, for example,

$$5 = 4 + \frac{4}{4} = \frac{44 - 4}{4 + 4}$$
, and $6 = 4 + \frac{4 + 4}{4} = \frac{44 - 4}{4 + 4}$

In case of number five, 4 is used three times, for number six, 4 is used four times, while symmetric representations uses five times 4 in each case.

The following section deals with representation of natural numbers from 0 to 100 in with minimum possible digits in each case.

3. Representations of Natural Numbers Using Different Digits

| 0 = 1 - 1 | 5 = (11 - 1)/(1 + 1) | 10 = 11 - 1 | 15 = 11 + 1 + 1 + 1 + 1 |
|-------------------------------|--------------------------------|-----------------------------|-----------------------------------|
| = 2 - 2 | = 2 + 2 + 2/2 | $= 2 \times 2 \times 2 + 2$ | = 2 + 2 + 22/2 |
| = 3 - 3 | = 3 + 3 - 3/3 | $= 3 \times 3 + 3/3$ | $= 3 + 3 + 3 \times 3$ |
| = 4 - 4 | = 4 + 4/4 | = (44 - 4)/4 | = 4 + 44/4 |
| =5-5 | = 5 | = 5 + 5 | = 5 + 5 + 5 |
| = 6 - 6 | =6-6/6 | = (66-6)/6 | $= 6 + 6 + 6 \times 6/(6 + 6)$ |
| = 7 - 7 | = 7 - (7 + 7)/7 | = (77 - 7)/7 | = 7 + 7 + 7/7 |
| = 8 - 8 | = (88 - 8)/(8 + 8) | = (88 - 8)/8 | = 8 + 8 - 8/8 |
| = 9 - 9. | = (99 - 9)/(9 + 9). | =9+9/9. | = 9 + (99 + 9)/(9 + 9). |
| 1 = 1 | $6 = (1+1) \times (1+1+1)$ | 11 = 11 | $16 = (1+1)^{(1+1+1+1)}$ |
| = 2/2 | = 2 + 2 + 2 | = 22/2 | $=2^{(2+2)}$ |
| = 3/3 | = 3 + 3 | = 33/3 | $= 3^3 - 33/3$ |
| = 4/4 | = 4 + (4 + 4)/4 | = 44/4 | $= 3 - 33/3$ $= 4 \times 4$ |
| = 5/5 | = 5 + 5/5 | = 55/5 | = 5 + 55/5 |
| = 6/6 | = 6 | = 66/6 | = 5 + 35/3 = $6 + (66 - 6)/6$ |
| = 7/7 | = 7 - 7/7 | = 77/7 | , |
| = 8/8 | = 8 - (8 + 8)/8 | = 88/8 | = 7 + 7 + (7 + 7)/7 |
| = 9/9. | = (99+9)/(9+9). | = 99/9. | = 8 + 8 |
| <i>— 373.</i> | (55 5)/(5 5). | _ 33/3. | = 9 + 9 - (9 + 9)/9. |
| 2 = 1 + 1 | $7 = (1+1) \times (1+1+1) + 1$ | 12 = 11 + 1 | $17 = (1+1)^{(1+1+1+1)} + 1$ |
| = 2 | = 2 + 2 + 2 + 2/2 | $= 2 \times (2 + 2 + 2)$ | $=2^{(2+2)}+2/2$ |
| = 3 - 3/3 | = 3 + 3 + 3/3 | $=3+3\times3$ | = 3 + 3 + 33/3 |
| = (4 + 4)/4 | = 4 + 4 - 4/4 | = 4 + 4 + 4 | $= 4 \times 4 + 4/4$ |
| = (5+5)/5 | = 5 + (5 + 5)/5 | = 6 + 6 | = 5 + (55 + 5)/5 |
| = (6+6)/6 | = 6 + 6/6 | = (55 + 5)/5 | = 6 + 66/6 |
| = (7 + 7)/7 | = 7 | = (77 + 7)/7 | = 7 + (77 - 7)/7 |
| = (8 + 8)/8 | = 8 - 8/8 | = (88 + 8)/8 | = 7 + (77 - 7)/7 = 8 + 8 + 8/8 |
| = (9+9)/9. | =9-(9+9)/9. | = (99 + 9)/9. | = 9 + 9 - 9/9. |
| | 4.4.0 | | 2 2 2/21 |
| 3 = 1 + 1 + 1 | $8 = (1+1)^{(1+1+1)}$ | 13 = 11 + 1 + 1 | $18 = (1+1) \times (11-1-1)$ |
| = 2 + 2/2 | $= 2 \times (2 + 2)$ | = 2 + 22/2 | $=2^{(2+2)}+2$ |
| = 3 | $= 3 \times 3 - 3/3$ | $= 3 + 3 \times 3 + 3/3$ | $= 3 \times (3 + 3)$ |
| = 4 - 4/4 | = 4 + 4 | = 4 + 4 + 4 + 4/4 | $= 4 \times 4 + (4 + 4)/4$ |
| =5-(5+5)/5 | = 5 + 5 - (5 + 5)/5 | = (55 + 5 + 5)/5 | = 5 + (55 + 5 + 5)/5 |
| $=6\times6/(6+6)$ | = 6 + (6 + 6)/6 | = 6 + 6 + 6/6 | = 6 + 6 + 6 |
| = (7 + 7 + 7)/7 | = 7 + 7/7 | = 7 + 7 - 7/7 | = 7 + 77/7 |
| = 88/8 - 8 | = 8 | = (88 + 8 + 8)/8 | = 8 + (88 - 8)/8 |
| = (9 + 9 + 9)/9. | =9-9/9. | = (9 + 99 + 9)/9. | = 9 + 9. |
| 4 = 1 + 1 + 1 + 1 | 9 = 11 - 1 - 1 | 14 = 11 + 1 + 1 + 1 | 40 (4 , 4) (44 4) |
| = 2 + 2 | $=(2+2/2)^2$ | $=2^{(2+2)}-2$ | $19 = (1+1) \times (11-1) - 1$ |
| = 3 + 3/3 | $= 3 \times 3$ | = 3 + 33/3 | = 22 - 2 - 2/2 |
| = 4 | = 4 + 4 + 4/4 | = 4 + (44 - 4)/4 | $= 3 \times (3+3) + 3/3$ |
| = 5 - 5/5 | = 5 + 5 - 5/5 | = 5 + 5 + 5 - 5/5 | = 4 + 4 + 44/4 |
| = 6 - (6+6)/6 | $= 6 + 6 \times 6/(6 + 6)$ | = 6 + 6 + (6 + 6)/6 | $= 5 \times 5 - 5 - 5/5$ |
| = 77/7 - 7 | = 7 + (7 + 7)/7 | = 7 + 7 | = 6 + 6 + 6 + 6/6 |
| $= 8 \times 8/(8+8)$ | = 7 + (7 + 7)/7 = $8 + 8/8$ | = 8 + 8 - (8 + 8)/8 | = 7 + (77 + 7)/7 |
| $= (9 \times 9 - 9)/(9 + 9).$ | = 0 + 3/3 $= 9.$ | = 9 + (99 - 9)/(9 + 9). | = 8 + 88/8 |
| (3 / 3 - 3)/(3 + 3). | - 5. | — 3 1 (33 - 3)1(3 1 3). | = 9 + 9 + 9/9. |

| $20 = (1+1) \times (11-1)$ |
|----------------------------|
| = 22 - 2 |
| $= 3 \times 3 + 33/3$ |
| $=4+4\times4$ |
| $=5\times5-5$ |
| = 6 + 6 + 6 + (6 + 6)/6 |
| = 7 + 7 + 7 - 7/7 |
| = 8 + (88 + 8)/8 |
| = 9 + 99/9. |
| |

$$21 = 11 + 11 - 1$$

$$= 22 - 2/2$$

$$= 3 \times (3 + 3) + 3$$

$$= 4 + 4 \times 4 + 4/4$$

$$= 5 + 5 + 55/5$$

$$= 6 \times (6 \times 6 + 6)/(6 + 6)$$

$$= 7 + 7 + 7$$

$$= (88 + 88 - 8)/8$$

$$= 9 + (99 + 9)/9.$$

$$22 = 11 + 11$$

$$= 22$$

$$= (33 + 33)/3$$

$$= (44 + 44)/4$$

$$= (55 + 55)/5$$

$$= (66 + 66)/6$$

$$= (77 + 77)/7$$

$$= (88 + 88)/8$$

$$= (99 + 99)/9.$$

23 = 11 + 11 + 1

$$= 22 + 2/2$$

$$= 3^{3} - 3 - 3/3$$

$$= 4 + 4 + 4 + 44/4$$

$$= 5 \times 5 - (5 + 5)/5$$

$$= 6 + 6 + 66/6$$

$$= (77 + 77 + 7)/7$$

$$= 8 + 8 + 8 - 8/8$$

$$= (99 + 99 + 9)/9.$$

$$24 = (1 + 1) \times (11 + 1)$$

$$= 22 + 2$$

$$= 3^{3} - 3$$

$$= 4 + 4 + 4 \times 4$$

$$= 5 \times 5 - 5/5$$

$$= 6 + 6 + 6 + 6$$

$$= 7 + 7 + (77 - 7)/7$$

$$= 8 + 8 + 8$$

$$= (99 + 99 + 9 + 9 + 9)/9.$$

$$25 = (1 + 1) \times (11 + 1) + 1$$

$$= 22 + 2 + 2/2$$

$$= 3^{3} - 3 + 3/3$$

$$= 4 + 4 + 4 \times 4 + 4/4$$

$$= 5 \times 5$$

$$= 6 \times 6 - 66/6$$

$$= 7 + 7 + 77/7$$

$$= 8 + 8 + 8 + 8/8$$

$$= (9 + 9 - (9 + 9)/9)) + 9.$$

$$26 = (1+1) \times (11+1+1)$$

$$= 22+2+2$$

$$= 3^{3} - 3/3$$

$$= 4+44 \times 4/(4+4)$$

$$= 5 \times 5+5/5$$

$$= 6 \times 6 - (66-6)/6$$

$$= 7+7+(77+7)/7$$

$$= 8+8+(88-8)/8$$

$$= 9+9+9-9/9.$$

$$27 = (1 + 1 + 1)^{(1+1+1)}$$

$$= 22 + 2 + 2 + 2/2$$

$$= 3^{3}$$

$$= 4 \times 4 + 44/4$$

$$= 5 \times 5 + (5 + 5)/5$$

$$= 6 \times 66/(6 + 6) - 6$$

$$= 77 - 7 \times 7 - 7/7$$

$$= 8 + 8 + 88/8$$

$$= 9 + 9 + 9.$$

$$28 = (1 + 1 + 1)^{(1+1+1)} + 1$$

$$= 22 + 2 + 2 + 2$$

$$= 3^{3} + 3/3$$

$$= 44 - 4 \times 4$$

$$= 5 \times 5 + 5 - (5 + 5)/5$$

$$= 6 + (66 + 66)/6$$

$$= 7 \times (77/7 - 7)$$

$$= 8 + 8 + (88 + 8)/8$$

$$= 9 + 9 + 9 + 9/9.$$

$$29 = (1 + 1 + 1) \times (11 - 1) - 1$$

$$= 22 + 2 + 2 + 2 + 2/2$$

$$= 3 + 3^{3} - 3/3$$

$$= 44 - 4 \times 4 + 4/4$$

$$= 5 \times 5 + 5 - 5/5$$

$$= 6 \times 6 - 6 - 6/6$$

$$= 77 - 7 \times 7 + 7/7$$

$$= 8 + (88 + 88 - 8)/8$$

$$= 9 + 9 + 99/9.$$

$$= 22 + 2 \times (2 + 2)$$

$$= 3 + 3^{3}$$

$$= 4 \times (4 + 4) - (4 + 4)/4$$

$$= 5 \times 5 + 5$$

$$= 6 \times 6 - 6$$

$$= 77 - 7 \times 7 + (7 + 7)/7$$

$$= 8 + (88 + 88)/8$$

$$= 999/9 - 9 \times 9.$$

 $30 = (1+1+1) \times (11-1)$

$$31 = (1 + 1 + 1) \times (11 - 1) + 1$$

$$= 22 + (2 + 2/2)^{2}$$

$$= 3 + 3^{3} + 3/3$$

$$= 4 \times (4 + 4) - 4/4$$

$$= 5 \times 5 + 5 + 5/5$$

$$= 6 \times 6 - 6 + 6/6$$

$$= 7 \times 7 - 7 - 77/7$$

$$= 8 + 8 + 8 + 8 - 8/8$$

$$= 9 + (99 + 99)/9.$$

$$32 = 11 \times (1 + 1 + 1) - 1$$

$$= 2 \times 2^{(2+2)}$$

$$= 33 - 3/3$$

$$= 4 \times (4 + 4)$$

$$= ((5 + 5)/5)^5$$

$$= 6 \times 6 - 6 + (6 + 6)/6$$

$$= 7 + 7 + 7 + 77/7$$

$$= 8 + 8 + 8 + 8$$

$$= 9 + (99 + 99 + 9)/9.$$

$$33 = 11 \times (1 + 1 + 1)$$

$$= 22 + 22/2$$

$$= 33$$

$$= 4 \times (4 + 4) + 4/4$$

$$= ((5 + 5)/5)^5 + 5/5$$

$$= 6 \times 66/(6 + 6)$$

$$= (77 + 77 + 77)/7$$

$$= 8 + 8 + 8 + 8 + 8/8$$

$$= 99 \times (9 + 9 + 9)/(9 \times 9).$$

$$34 = 11 \times (1 + 1 + 1) + 1$$

$$= 2 + 2 \times 2^{(2+2)}$$

$$= 33 + 3/3$$

$$= 44 - (44 - 4)/4$$

$$= 5 \times 5 + 5 - 5/5 + 5$$

$$= 6 \times 6 - (6 + 6)/6$$

$$= 777/7 - 77$$

$$= 8 + 8 + 8 + (88 - 8)/8$$

$$= ((9 + 9) \times (9 + 9) + 9)/9.$$

| $35 = 11 \times (1 + 1 + 1) + 1 + 1$ |
|--------------------------------------|
| = 22 + 2 + 22/2 |
| = 3 + 33 - 3/3 |
| $= 4 + 4 \times (4 + 4) - 4/4$ |
| $=5\times5+5+5$ |
| $= 6 \times 6 - 6/6$ |
| $= 7 \times 7 - 7 - 7$ |
| = 8 + 8 + 8 + 88/8 |
| = 9 + 9 + 9 + 9 - 9/9. |
| |
| |

$$36 = (1 + 1 + 1) \times (11 + 1)$$

$$= (2 + 2 + 2)^{2}$$

$$= 3 + 33$$

$$= 4 + 4 \times (4 + 4)$$

$$= 5 \times 5 + 55/5$$

$$= 6 \times 6$$

$$= 7 \times 7 - 7 - 7 + 7/7$$

$$= 88 \times 8/(8 + 8) - 8$$

$$= 9 + 9 + 9 + 9.$$

$$37 = 111/(1+1+1)$$

$$= (2+2+2)^2 + 2/2$$

$$= 3+33+3/3$$

$$= 4+4\times(4+4)+4/4$$

$$= 5+((5+5)/5)^5$$

$$= 6\times 6+6/6$$

$$= 777/(7+7+7)$$

$$= 888/(8+8+8)$$

$$= 999/(9+9+9).$$

$$38 = 111/(1+1+1) + 1$$

$$= (2+2+2)^{2} + 2$$

$$= 3^{3} + 33/3$$

$$= 44 - 4 - (4+4)/4$$

$$= 5 + ((5+5)/5)^{5} + 5/5$$

$$= 6 \times 6 + (6+6)/6$$

$$= 7 \times 7 - 77/7$$

$$= 8 + 8 + (88 + 88)/8$$

$$= 9 + 9 + 9 + 99/9.$$

$$39 = (1 + 1 + 1) \times (11 + 1 + 1)$$

$$= 2 \times (22 - 2) - 2/2$$

$$= 3 + 3 + 33$$

$$= 44 - 4 - 4/4$$

$$= 55 - 5 - 55/5$$

$$= 6 + 6 \times 66/(6 + 6)$$

$$= 7 \times 7 - (77 - 7)/7$$

$$= 8 \times 8 - 8 - 8 - 8 - 8/8$$

$$= 9 + 9 + 9 + (99 + 9)/9.$$

$$40 = (1 + 1) \times (1 + 1) \times (11 - 1)$$

$$= 2 \times (22 - 2)$$

$$= 3 + 3 + 33 + 3/3$$

$$= 44 - 4$$

$$= 5 \times 5 + 5 + 5 + 5$$

$$= 6 \times 6 + 6 - (6 + 6)/6$$

$$= 7 \times 7 - 7 - (7 + 7)/7$$

$$= 8 \times (8 + 8) - 88$$

$$= (9 \times 9 \times 9 - 9)/(9 + 9).$$

$$41 = (1 + 1 + 1) \times (11 - 1) + 11$$

$$= 2 \times (22 - 2) + 2/2$$

$$= 3 + 3^{3} + 33/3$$

$$= 44 - 4 + 4/4$$

$$= 5 \times 5 + 5 + 55/5$$

$$= 6 \times 6 + 6 - 6/6$$

$$= 7 \times 7 - 7 - 7/7$$

$$= 8 \times 8 - 8 - 8 - 8 + 8/8$$

$$= (9 \times 9 \times 9 + 9)/(9 + 9).$$

$$42 = (1 + 1) \times (11 + 11 - 1)$$

$$= 2 \times 22 - 2$$

$$= 3 \times 3 + 33$$

$$= 44 - (4 + 4)/4$$

$$= 5 + 5 + ((5 + 5)/5)^{5}$$

$$= 6 \times 6 + 6$$

$$= 7 \times 7 - 7$$

$$= 8 \times 8 - (88 + 88)/8$$

$$= 9 + 9 \times 99/(9 + 9 + 9).$$

$$43 = (1+1) \times (11+11) - 1$$

$$= 2 \times 22 - 2/2$$

$$= 3 \times 3 + 33 + 3/3$$

$$= 44 - 4/4$$

$$= 55 - (55+5)/5$$

$$= 6 \times 6 + 6 + 6/6$$

$$= 7 \times 7 - 7 + 7/7$$

$$= 8 + 8 + 8 + 8 + 88/8$$

$$= 9 \times 9 - 9 - 9 - 9 - 99/9.$$

$$44 = (1 + 1) \times (11 + 11)$$

$$= 2 \times 22$$

$$= 33 + 33/3$$

$$= 44$$

$$= 55 - 55/5$$

$$= 6 \times 6 + 6 + (6 + 6)/6$$

$$= 7 \times 7 - 7 + (7 + 7)/7$$

$$= 88 \times 8/(8 + 8)$$

$$= 99 \times (9 - 9/9)/(9 + 9).$$

$$45 = (1 + 1) \times (11 + 11) + 1$$

$$= 2 \times 22 + 2/2$$

$$= 3 + 3 \times 3 + 33$$

$$= 44 + 4/4$$

$$= 55 - 5 - 5$$

$$= 666/6 - 66$$

$$= 7 \times 7 + 7 - 77/7$$

$$= 8 \times 8 - 8 - 88/8$$

$$= 9 + 9 + 9 + 9 + 9.$$

$$46 = (1+1) \times (11+11+1)$$

$$= 2 \times 22 + 2$$

$$= 3+3 \times 3 + 33 + 3/3$$

$$= 44 + (4+4)/4$$

$$= 55-5-5+5/5$$

$$= 6 \times 6 + (66-6)/6$$

$$= 7 \times 7 - (7+7+7)/7$$

$$= 8 \times 8 - 8 - 8 - (8+8)/8$$

$$= 9+9+9+9+9+9+9/9.$$

$$47 = (1 + 1) \times (11 + 11 + 1) + 1$$

$$= 2 \times 22 + 2 + 2/2$$

$$= 3 + 33 + 33/3$$

$$= 4 + 44 - 4/4$$

$$= 5 + 5 + 5 + ((5 + 5)/5)^{5}$$

$$= 66 + 6 \times 6/6$$

$$= 7 \times 7 - ((7 + 7)/7)$$

$$= 888/8 - 8 \times 8$$

$$= 9 + 9 + 9 + 9 + 99/9.$$

$$48 = (1 + 1) \times (1 + 1) \times (11 + 1)$$

$$= 2 \times (22 + 2)$$

$$= 3 \times 3^{3} - 33$$

$$= 4 + 44$$

$$= 55 - 5 - (5 + 5)/5$$

$$= 6 \times 6 + 6 + 6$$

$$= 7 \times 7 - 7/7$$

$$= 8 \times 8 - 8 - 8$$

$$= 9 + 9 - 9 \times 9 + 999/9.$$

$$49 = (11 - 1)^{(1+1)}/(1 + 1) - 1$$

$$= 2 \times (22 + 2) + 2/2$$

$$= 3^{3} + 33 - 33/3$$

$$= 4 + 44 + 4/4$$

$$= 55 - 5 - 5/5$$

$$= 6 \times 6 + 6 + 6 + 6/6$$

$$= 7 \times 7$$

$$= 8 \times 8 - 8 - 8 + 8/8$$

$$= (9 \times 99 - 9)/(9 + 9).$$

| $50 = (11 - 1)^{(1+1)}/(1+1)$ |
|------------------------------------|
| $= 2 \times (22 + 2) + 2$ |
| = 3 + 3 + 33 + 33/3 |
| = 4 + 44 + (4 + 4)/4 |
| $=5\times(5+5)$ |
| $= 6 \times 6 + 6 + 6 + (6 + 6)/6$ |
| $= 7 \times 7 + 7/7$ |
| $= 8 \times 8 - 8 - 8 + (8 + 8)/8$ |
| $= (9 \times 99 + 9)/(9 + 9).$ |

$$51 = \frac{(11-1)^{(1+1)}}{(1+1)} + 1$$

$$= 2 \times (22+2) + 2 + 2/2$$

$$= 3^{3} + 3^{3} - 3$$

$$= 4 + 4 + 44 - 4/4$$

$$= 55 - 5 + 5/5$$

$$= 6 - 66 + 666/6$$

$$= 7 \times 7 + (7+7)/7$$

$$= 8 \times 8 - 8 - 8 + 8/8 + 8/8$$

$$= (999 - 9 \times 9)/(9 + 9).$$

$$52 = (1+1) \times (1+1) \times (11+1+1)$$

$$= 2 \times (22+2+2)$$

$$= 3^{3} + 3^{3} - 3 + 3/3$$

$$= 4+4+44$$

$$= 55-5+(5+5)/5$$

$$= ((6+6)/6)^{6} - 6 - 6$$

$$= 7 \times 7 + (7+7+7)/7$$

$$= 8 + 88 \times 8/(8+8)$$

$$= 9 \times 9 - 9 - 9 - 99/9.$$

$$53 = (111 - 1)/(1 + 1) - 1 - 1$$

$$= 2 \times (22 + 2 + 2) + 2/2$$

$$= 3^{3} + 3^{3} - 3/3$$

$$= (4^{4} - 44)/4$$

$$= 55 - (5 + 5)/5$$

$$= 6 \times 6 + 6 + 66/6$$

$$= 7 \times 7 + 77/7 - 7$$

$$= 8 \times 8 - 88/8$$

$$= 9 \times 9 - 9 - 9 - 9 - 9/9.$$

$$54 = (111 - 1)/(1 + 1) - 1$$

$$= 2 \times (22 + 2 + 2) + 2$$

$$= 3 \times 3 \times (3 + 3)$$

$$= 44 + (44 - 4)/4$$

$$= 55 - 5/5$$

$$= 66 - 6 - 6$$

$$= 7 \times 7 + 7 - (7 + 7)/7$$

$$= 8 \times 8 - (88 - 8)/8$$

$$= 9 \times 9 - 9 - 9 - 9$$

$$55 = (111 - 1)/(1 + 1)$$

$$= 2 \times 22 + 22/2$$

$$= 3^{3} + 3^{3} + 3/3$$

$$= 44 + 44/4$$

$$= 55$$

$$= 66 - 66/6$$

$$= 7 \times 7 + 7 - 7/7$$

$$= 8 \times 8 - 8 - 8/8$$

$$= (999 - 9)/(9 + 9).$$

$$56 = (111 + 1)/(1 + 1)$$

$$= (222 + 2)/(2 + 2)$$

$$= (333 + 3)/(3 + 3)$$

$$= 44 + 4 + 4 + 4$$

$$= 55 + 5/5$$

$$= (666 + 6)/(6 + 6).$$

$$= 7 \times 7 + 7$$

$$= 8 \times 8 - 8$$

$$= (999 + 9)/(9 + 9).$$

$$57 = (111 + 1)/(1 + 1) + 1$$

$$= 2 \times 22 + 2 + 22/2$$

$$= 3^{3} + 3^{3} + 3$$

$$= 4 + (4^{4} - 44)/4$$

$$= 55 + (5 + 5)/5$$

$$= 66 + (6 + 6 - 66)/6$$

$$= 7 \times 7 + 7 + 7/7$$

$$= 8 \times 8 - 8 + 8/8$$

$$= (999 + 9)/(9 + 9) + 9/9.$$

$$58 = (111 + 1)/(1 + 1) + 1 + 1$$

$$= (2 + 2 + 2)^{2} + 22$$

$$= (3 + 3/3)^{3} - 3 - 3$$

$$= (4^{4} - 4 - 4)/4 - 4$$

$$= 55 + 5 - (5 + 5)/5$$

$$= ((6 + 6)/6)^{6} - 6$$

$$= 7 \times 7 + 7 + (7 + 7)/7$$

$$= 8 \times 8 - 8 + (8 + 8)/8$$

$$= 9 + (9 \times 99 - 9)/(9 + 9).$$

$$59 = (11^{(1+1)} - 1)/(1+1) - 1$$

$$= (4^4 - 4)/4 - 4$$

$$= 2 \times (22+2) + 22/2$$

$$= 3^3 + 33 - 3/3$$

$$= 55 + 5 - 5/5$$

$$= 66 + 6 - 6/6$$

$$= 77 - 7 - 77/7$$

$$= 8 \times 8 - 8 - 8 + 88/8$$

$$= 9 + (9 \times 99 + 9)/(9 + 9).$$

$$60 = (11^{(1+1)} - 1)/(1+1)$$

$$= 2 \times (2 \times (2+2) + 22)$$

$$= 3^{3} + 33$$

$$= 4 \times 4 + 44$$

$$= 55 + 5$$

$$= 66 - 6$$

$$= 7 \times 7 + 77/7$$

$$= 8 + 8 + 88 \times 8/(8+8)$$

$$= 9 \times 9 - 9 - (99+9)/9.$$

$$61 = (11^{(1+1)} + 1)/(1 + 1)$$

$$= (3 + 3/3)^3 - 3$$

$$= (4^4 + 4)/4 - 4$$

$$= 2^{(2+2+2)} - 2 - 2/2$$

$$= 55 + 5 + 5/5$$

$$= 66 - 6 + 6/6$$

$$= 7 \times 7 + (77 + 7)/7$$

$$= 8 \times 8 + 8 - 88/8$$

$$= 9 \times 9 - 99/9 - 9.$$

$$62 = (11^{(1+1)} + 1)/(1 + 1) + 1$$

$$= 2^{(2+2+2)} - 2$$

$$= 3 + 3^3 + 33 - 3/3$$

$$= (4^4 - 4 - 4)/4$$

$$= 55 + 5 + (5 + 5)/5$$

$$= 66 - 6 + (6 + 6)/6$$

$$= 777/7 - 7 \times 7$$

$$= 8 \times 8 - (8 + 8)/8$$

$$= 9 \times 9 - 9 - 9 - 9/9.$$

$$63 = (1 + 1 + 1) \times (11 + 11 - 1)$$

$$= 2^{(2+2+2)} - 2/2$$

$$= 3 + 3^{3} + 33$$

$$= (4^{4} - 4)/4$$

$$= (5 + 5^{5}/5)/(5 + 5)$$

$$= 66 - 6 \times 6/(6 + 6)$$

$$= 77 - 7 - 7$$

$$= 8 \times 8 - 8/8$$

$$= 9 \times 9 - 9 - 9.$$

$$64 = (1+1)^{((1+1)\times(1+1+1))}$$

$$= 2^{(2+2+2)}$$

$$= 4 \times 4 \times 4$$

$$= (3+3/3)^{3}$$

$$= 55+5+5-5/5$$

$$= ((6+6)/6)^{6}$$

$$= 77-7-7+7/7$$

$$= 8 \times 8$$

$$= (9-9/9) \times (9-9/9).$$

$$65 = (1 + 1)^{((1+1)\times(1+1+1))} + 1$$

$$= 2^{(2+2+2)} + 2/2$$

$$= (3 + 3/3)^3 + 3/3$$

$$= (4^4 + 4)/4$$

$$= 55 + 5 + 5$$

$$= 66 - 6/6$$

$$= 77 - (77 + 7)/7$$

$$= 8 \times 8 + 8/8$$

$$= 9 \times 9 - 9 - 9 + (9 + 9)/9.$$

$$66 = 11 \times (1 + 1) \times (1 + 1 + 1)$$

$$= 2^{(2+2+2)} + 2$$

$$= 33 + 33$$

$$= (4^4 + 4 + 4)/4$$

$$= 55 + 55/5$$

$$= 66$$

$$= 77 - 77/7$$

$$= 8 \times 8 + (8 + 8)/8$$

$$= 99 \times (99 + 9)/(9 \times (9 + 9)).$$

$$67 = 11 \times (1 + 1) \times (1 + 1 + 1) + 1$$

$$= 2^{(2+2+2)} + 2 + 2/2$$

$$= (3 + 3/3)^3 + 3$$

$$= 4 + (4^4 - 4)/4$$

$$= 55 + (55 + 5)/5$$

$$= 66 + 6/6$$

$$= 77 - (77 - 7)/7$$

$$= 8 \times 8 - 8 + 88/8$$

$$= 9 \times 9 - (99 + 9 + 9 + 9)/9.$$

$$68 = (1 + 1) \times (11 \times (1 + 1 + 1) + 1)$$

$$= 2^{(2+2+2)} + 2 + 2$$

$$= ((3 + 3)^3 - 3)/3 - 3$$

$$= 4 + 4 \times 4 \times 4$$

$$= 5 + (5^5/5 + 5)/(5 + 5)$$

$$= 66 + (6 + 6)/6$$

$$= 77 - 7 - (7 + 7)/7$$

$$= 88 - 8 - (88 + 8)/8$$

$$= 9 \times 9 - (99 + 9 + 9)/9.$$

$$69 = (1 + 1 + 1) \times (11 + 11 + 1)$$

$$= (22 + 2/2) \times (2 + 2/2)$$

$$= 33 + 33 + 3$$

$$= 4 + (4^4 + 4)/4$$

$$= 55 + 5 + 5 + 5 - 5/5$$

$$= 66 + 6 \times 6/(6 + 6)$$

$$= 77 - 7 - 7/7$$

$$= 88 - 8 - 88/8$$

$$= 9 \times 9 - (99 + 9)/9.$$

$$70 = (11 - 1 - 1)^{(1+1)} - 11$$

$$= 2 \times (22 + 2) + 22$$

$$= (3/3 + 3)^{3} + 3 + 3$$

$$= 4 + (4^{4} + 4 + 4)/4$$

$$= 55 + 5 + 5 + 5$$

$$= 6 + ((6 + 6)/6)^{6}$$

$$= 77 - 7$$

$$= 8 \times 8 + 8 - (8 + 8)/8$$

$$= 9 \times 9 - 99/9.$$

$$71 = (11+1)^{(1+1)}/(1+1) - 1$$

$$= 2 \times (2+2+2)^2 - 2/2$$

$$= ((3+3)^3 - 3)/3$$

$$= 4+4+(4^4-4)/4$$

$$= 55+5+55/5$$

$$= 66+6-6/6$$

$$= 77-7+7/7$$

$$= 8 \times 8+8-8/8$$

$$= 9 \times 9-9-9/9.$$

$$72 = (11 + 1)^{(1+1)}/(1 + 1)$$

$$= 2 \times (2 + 2 + 2)^{2}$$

$$= 3 \times (3^{3} - 3)$$

$$= 4 + 4 + 4 \times 4 \times 4$$

$$= 55 + 5 + (55 + 5)/5$$

$$= 66 + 6$$

$$= 77 - 7 + (7 + 7)/7$$

$$= 8 + 8 \times 8$$

$$= 9 \times 9 - 9.$$

$$73 = (11 + 1)^{(1+1)}/(1 + 1) + 1$$

$$= 2 \times (2 + 2 + 2)^{2} + 2/2$$

$$= ((3 + 3)^{3} + 3)/3$$

$$= 4 + 4 + (4^{4} + 4)/4$$

$$= 5 \times (5 + 5 + 5) - (5 + 5)/5$$

$$= 66 + 6 + 6/6$$

$$= 77 + 7 - 77/7$$

$$= 8 \times 8 + 8 + 8/8$$

$$= 9 \times 9 - 9 + 9/9.$$

$$74 = (1+1) \times 111/(1+1+1)$$

$$= 2 \times (2+2+2)^2 + 2$$

$$= 3 + ((3+3)^3 - 3)/3$$

$$= (4^4 + 44 - 4)/4$$

$$= 5 \times (5+5+5) - 5/5$$

$$= 66 + 6 + (6+6)/6$$

$$= 77 - (7+7+7)/7$$

$$= 8 \times 8 + 8 + (8+8)/8$$

$$= 9 \times 9 - (9-(9+9)/9).$$

$$75 = (1 + 1) \times 111/(1 + 1 + 1) + 1$$

$$= 2^{(2+2+2)} + 22/2$$

$$= 3 + 3 \times (3^{3} - 3)$$

$$= (44 + 4^{4})/4$$

$$= 5 \times (5 + 5 + 5)$$

$$= 666/6 - 6 \times 6$$

$$= 77 - (7 + 7)/7$$

$$= 8 \times 8 + 88/8$$

$$= 9 \times 9 - (99 + 9)/(9 + 9).$$

$$76 = (1 + 1) \times (111/(1 + 1 + 1) + 1)$$

$$= 2 \times ((2 + 2 + 2)^{2} + 2)$$

$$= 3 + (3 + (3 + 3)^{3})/3$$

$$= 44 + 4 \times (4 + 4)$$

$$= 5 \times (5 + 5 + 5) + 5/5$$

$$= 6 + 6 + ((6 + 6)/6)^{6}$$

$$= 77 - 7/7$$

$$= 88 - (88 + 8)/8$$

$$= 9 \times 9 - (99 - 9)/(9 + 9).$$

$$77 = 11 \times ((1+1) \times (1+1+1) + 1)$$

$$= 2 \times 2 \times 22 - 22/2$$

$$= 3 \times 3^{3} - 3 - 3/3$$

$$= (4 - 4/4)^{4} - 4$$

$$= 55 + (55 + 55)/5$$

$$= 66 + 66/6$$

$$= 77$$

$$= 88 - 88/8$$

$$= 9 \times 9 - (9 + 9 + 9 + 9)/9.$$

$$78 = 111 - 11 \times (1 + 1 + 1)$$

$$= 2 \times 2 \times (22 - 2) - 2$$

$$= 3 \times 3^{3} - 3$$

$$= 4 + (4^{4} - 4 + 44)/4$$

$$= 5 \times 5 + 55 - (5 + 5)/5$$

$$= 66 + 6 + 6$$

$$= 77 + 7/7$$

$$= 88 - (88 - 8)/8$$

$$= 9 \times 9 - (9 + 9 + 9)/9.$$

$$79 = (11 - 1 - 1)^{(1+1)} - 1 - 1$$

$$= (2 + 2/2)^{(2+2)} - 2$$

$$= 3 \times 3^3 - 3 + 3/3$$

$$= 4 + (44 + 4^4)/4$$

$$= 5 \times 5 + 55 - 5/5$$

$$= 66 + 6 + 6 + 6/6$$

$$= 77 + (7 + 7)/7$$

$$= 88 - 8 - 8/8$$

$$= 9 \times 9 - (9 + 9)/9.$$

| $80 = (11 - 1 - 1)^{(1+1)} - 1$ |
|---------------------------------|
| $= 2 \times 2 \times (22 - 2)$ |
| $= 3 \times 3^3 - 3/3$ |
| $= 4 \times (4 \times 4 + 4)$ |
| $=5\times5+55$ |
| =66+6+6+(6+6)/6 |
| = 77 + (7 + 7 + 7)/7 |
| = 88 - 8 |
| $= 9 \times 9 - 9/9.$ |

$$81 = (11 - 1 - 1)^{(1+1)}$$

$$= (2 + 2/2)^{(2+2)}$$

$$= 3 \times 3^{3}$$

$$= (4 - 4/4)^{4}$$

$$= 5 \times 5 + 55 + 5/5$$

$$= 6 - 66 + 6 \times 66/6$$

$$= 77/7 - 7 + 77$$

$$= 88 - 8 + 8/8$$

$$= 9 \times 9.$$

$$82 = (11 - 1 - 1)^{(1+1)} + 1$$

$$= 2 \times 2 \times (22 - 2) + 2$$

$$= 3 \times 3^{3} + 3/3$$

$$= (4 - 4/4)^{4} + 4/4$$

$$= 5 \times 5 + 55 + (5 + 5)/5$$

$$= 6 + 6 + 6 + ((6 + 6)/6)^{6}$$

$$= 77 + 7 - (7 + 7)/7$$

$$= 88 - 8 + (8 + 8)/8$$

$$= 9 \times 9 + 9/9.$$

$$83 = (11 - 1 - 1)^{(1+1)} + 1 + 1$$

$$= (2 + 2/2)^{(2+2)} + 2$$

$$= 3 + 3 \times 3^{3} - 3/3$$

$$= 4 + 4 + (44 + 4^{4})/4$$

$$= 5 \times 5 + 55 + 5 - (5 + 5)/5$$

$$= 66 + 6 + 66/6$$

$$= 77 + 7 - 7/7$$

$$= 88/8 + 8 + 8 \times 8$$

$$= 9 \times 9 + (9 + 9)/9.$$

$$84 = (11 - 1 - 1)^{(1+1)} + 1 + 1 + 1$$

$$= 2 \times (2 \times 22 - 2)$$

$$= 3 + 3 \times 3^{3}$$

$$= 4 + 4 \times (4 \times 4 + 4)$$

$$= 5 \times 5 + 55 + 5 - 5/5$$

$$= 66 + 6 + 6 + 6$$

$$= 77 + 7$$

$$= 88 - 8 \times 8/(8 + 8)$$

$$= 9 \times 9 + (9 + 9 + 9)/9.$$

$$85 = 111 - (1 + 1) \times (11 + 1 + 1)$$

$$= 2 \times 2 \times 22 - 2 - 2/2$$

$$= 3 + 3 \times 3^{3} + 3/3$$

$$= 4 + (4 - 4/4)^{4}$$

$$= 5 \times 5 + 55 + 5$$

$$= 66 + 6 + 6 + 6 + 6/6$$

$$= 77 + 7 + 7/7$$

$$= 88 + 8 - 88/8$$

$$= 9 \times 9 + (9 + 9 + 9 + 9)/9.$$

$$86 = 11 \times (1+1)^{(1+1+1)} - 1 - 1$$

$$= 2 \times 2 \times 22 - 2$$

$$= 3 + 3 + 3 \times 3^{3} - 3/3$$

$$= 44 + 44 - (4+4)/4$$

$$= 555/5 - 5 \times 5$$

$$= 66 + 6 + 6 + 6 + (6+6)/6$$

$$= 77 + 7 + (7+7)/7$$

$$= 88 - (8+8)/8$$

$$= 99 - (99 + 9 + 9)/9.$$

$$87 = 111 - (1 + 1) \times (11 + 1)$$

$$= 2 \times 2 \times 22 - 2/2$$

$$= 3 + 3 + 3 \times 3^{3}$$

$$= 44 + 44 - 4/4$$

$$= 55 + ((5 + 5)/5)^{5}$$

$$= 6 + 6 - 66 + 6 \times 66/6$$

$$= 77 + (77 - 7)/7$$

$$= 88 - 8/8$$

$$= 99 - (99 + 9)/9.$$

$$88 = 11 \times (1+1)^{(1+1+1)}$$

$$= 2 \times 2 \times 22$$

$$= 3 \times 33 - 33/3$$

$$= 44 + 44$$

$$= 5 \times 5 + (5^{5}/5 + 5)/(5 + 5)$$

$$= 66 + (66 + 66)/6$$

$$= 77 + 77/7$$

$$= 88$$

$$= 99 - 99/9.$$

$$89 = 111 - 11 - 11$$

$$= 2 \times 2 \times 22 + 2/2$$

$$= 3 \times (3^{3} + 3) - 3/3$$

$$= 44 + 44 + 4/4$$

$$= 5 \times (5 \times 5 - 5) - 55/5$$

$$= 66 + 6 + 6 + 66/6$$

$$= 77 + (77 + 7)/7$$

$$= 88 + 8/8$$

$$= 99 - 9 - 9/9.$$

$$90 = (11 - 1) \times (11 - 1 - 1)$$

$$= 2 \times 2 \times 22 + 2$$

$$= 3 \times (3^{3} + 3)$$

$$= 44 + 44 + (4 + 4)/4$$

$$= 5 \times 5 + 55 + 5 + 5$$

$$= 66 + 6 + 6 + 6 + 6$$

$$= 7 + 77 + 7 - 7/7$$

$$= 88 + (8 + 8)/8$$

$$= 99 - 9.$$

$$91 = (11 - 1) \times (11 - 1 - 1) + 1$$

$$= 2 \times 2 \times 22 + 2 + 2/2$$

$$= 3^{3} + (3 + 3/3)^{3}$$

$$= 4 + 44 + 44 - 4/4$$

$$= 5 - 5 \times 5 + 555/5$$

$$= 66 + 6 \times 6 - 66/6$$

$$= 77 + 7 + 7$$

$$= 88 - 8 + 88/8$$

$$= 99 - 9 + 9/9.$$

$$92 = (11 - 1 - 1)^{(1+1)} + 11$$

$$= 2 \times (2 \times 22 + 2)$$

$$= 3 \times 3^{3} + 33/3$$

$$= 4 + 44 + 44$$

$$= 55 + 5 + ((5 + 5)/5)^{5}$$

$$= 66 + 6 \times 6 - (66 - 6)/6$$

$$= 77 + 7 + 7 + 7/7$$

$$= 88 + 8 \times 8/(8 + 8)$$

$$= 9 \times 9 + 99/9.$$

$$93 = ((1+1)^{(11-1)} - 1)/11$$

$$= 2 \times (2 \times 22 + 2) + 2/2$$

$$= 3 + 3 \times (3^{3} + 3)$$

$$= ((4+4)^{4} - 4)/44$$

$$= 5 \times 5 \times 5 - ((5+5)/5)^{5}$$

$$= 666/6 - 6 - 6 - 6$$

$$= (777 - 77)/7 - 7$$

$$= 8888/88 - 8$$

$$= 999/9 - 9 - 9.$$

$$94 = ((1+1)^{(11-1)} - 1)/11 + 1$$

$$= 2 \times (2 \times 22 + 2) + 2$$

$$= 3 + 3 \times (3^{3} + 3) + 3/3$$

$$= (444 - 4)/4 - 4 \times 4$$

$$= 5 \times (5 \times 5 - 5) - 5 - 5/5$$

$$= 6 \times 6 - 6 + ((6+6)/6)^{6}$$

$$= 7777/77 - 7$$

$$= 88 + 8 - (8+8)/8$$

$$= (999 + 9)/9 - 9 - 9.$$

```
95 = 111 - (1+1)^{(1+1+1+1)}
                                                     97 = 111 - 11 - 1 - 1 - 1
                                                                                                          99 = 11 \times (11 - 1 - 1)
                                                        = 2 \times 2 \times (22 + 2) + 2/2
   = 2 \times 2 \times (22 + 2) - 2/2
                                                                                                             =(22/2)^2-22
                                                        = 3 \times 33 - 3 + 3/3
   = 3 \times 33 - 3 - 3/3
                                                                                                             = 3 \times 33
   = 444/4 - 4 \times 4
                                                        = 4 \times 4 + (4 - 4/4)^4
                                                                                                             = 4 - 4 \times 4 + 444/4
   =5\times(5\times5-5)-5
                                                        =55+5+5+((5+5)/5)^5
                                                                                                             = 5 \times (5 \times 5 - 5) - 5/5
   =66+6\times6-6-6/6
                                                        = 66 + 6 \times 6 - 6 + 6/6
                                                                                                             =666/6-6-6
   = 77 + 7 + 77/7
                                                                                                             = 7 \times (7 + 7) + 7/7
                                                        = 7 \times (7 + 7) - 7/7
   = 88 + 8 - 8/8
                                                        = 88 + 8 + 8/8
                                                                                                             = 88 + 88/8
   = 99 - (9 \times 9 - 9)/(9 + 9).
                                                                                                             = 99.
                                                        = 99 - (9 + 9)/9.
96 = (11+1) \times (1+1)^{(1+1+1)}
                                                     98 = 111 - 11 - 1 - 1
                                                                                                          100 = (11 - 1)^{(1+1)}
   = 2 \times 2 \times (22 + 2)
                                                        = 2 \times 2 \times (22 + 2) + 2
                                                                                                               = (2 \times (2 + 2) + 2)^2
   = 3 \times 33 - 3
                                                        = 3 \times 33 - 3/3
                                                                                                              = 3 \times 33 + 3/3
   = 4 \times (4 \times 4 + 4 + 4)
                                                        = 4 - 4 \times 4 + (444 - 4)/4
                                                                                                              = (444 - 44)/4
   = 5 \times (5 \times 5 - 5) - 5 + 5/5
                                                       = 5 \times (5 \times 5 - 5) - (5 + 5)/5
                                                                                                              = 5 \times (5 \times 5 - 5)
   = 66 + 6 \times 6 - 6
                                                        = (666 - 6)/6 - 6 - 6
                                                                                                               = (666 - 66)/6
   = 7 \times (7 + 7) - (7 + 7)/7
                                                        = 7 \times (7 + 7)
                                                                                                               = (777 - 77)/7
   = 88 + 8
                                                        = 88 + (88 - 8)/8
                                                                                                               = (888 - 88)/8
   = 99 - (9 + 9 + 9)/9.
                                                        = 99 - 9/9.
                                                                                                               = 99 + 9/9.
```

Instead of writing jointly, as above, here below in the following sections, the natural numbers from 101 to 1000 are represented separately in each case.

4. Representations Using Number 1

```
101 = (11 - 1)^{(1+1)} + 1.
                                                                             132 = 11 \times (11 + 1).
102 = (11 - 1)^{(1+1)} + 1 + 1.
                                                                             133 = 11 \times (11 + 1) + 1.
103 = (11 - 1)^{(1+1)} + 1 + 1 + 1.
                                                                             134 = 11 \times (11 + 1) + 1 + 1.
104 = (11 - 1)^{(1+1)} + 1 + 1 + 1 + 1.
                                                                             135 = 11 \times (11 + 1) + 1 + 1 + 1.
105 = 111 - (1+1) \times (1+1+1).
                                                                             136 = 11 \times (11 + 1) + 1 + 1 + 1 + 1.
106 = 111 - (11 - 1)/(1 + 1).
                                                                             137 = (1+1) \times (11+1+1) + 111.
                                                                             138 = (1+1+1)^{(1+1+1)} + 111.
107 = 111 - (1 + 1 + 1 + 1).
108 = 111 - (1 + 1 + 1).
                                                                             139 = (11 - 1) \times (11 + 1 + 1 + 1) - 1.
                                                                             140 = (11 - 1) \times (11 + 1 + 1 + 1).
109 = 111 - (1 + 1).
                                                                             141 = (11+1)^{(1+1)} - 1 - 1 - 1.
110 = 111 - 1.
                                                                             142 = (11+1)^{(1+1)} - 1 - 1.
111 = 111.
112 = 111 + 1.
                                                                             143 = 11 \times (11 + 1 + 1).
                                                                             144 = (11+1)^{(1+1)}.
113 = 111 + 1 + 1.
                                                                             145 = (11+1)^{(1+1)} + 1.
114 = 111 + 1 + 1 + 1.
                                                                             146 = (11+1)^{(1+1)} + 1 + 1.
115 = 111 + 1 + 1 + 1 + 1.
                                                                             147 = (11+1)^{(1+1)} + 1 + 1 + 1.
116 = 111 + 1 + 1 + 1 + 1 + 1.
                                                                             148 = (11+1)^{(1+1)} + 1 + 1 + 1 + 1.
117 = 111 + (1+1) \times (1+1+1).
                                                                             149 = (11+1)^{(1+1)} + 1 + 1 + 1 + 1 + 1.
118 = 11^{(1+1)} - 1 - 1 - 1.
119 = 11^{(1+1)} - 1 - 1.
                                                                             150 = (11 - 1) \times (11 + 1 + 1 + 1 + 1).
120 = 11^{(1+1)} - 1.
                                                                             151 = (11 - 1) \times (11 + 1 + 1 + 1 + 1) + 1.
121 = 11^{(1+1)}.
                                                                             152 = 11 \times (11 + 1 + 1 + 1) - 1 - 1.
122 = 11^{(1+1)} + 1.
                                                                             153 = 11 \times (11 + 1 + 1 + 1) - 1.
123 = 11^{(1+1)} + 1 + 1.
                                                                             154 = 11 \times (11 + 1 + 1 + 1).
124 = 11^{(1+1)} + 1 + 1 + 1.
                                                                             155 = (11+1)^{(1+1)} + 11.
                                                                             156 = (11+1) \times (11+1+1).
125 = 11^{(1+1)} + 1 + 1 + 1 + 1.
126 = 11^{(1+1)} + 1 + 1 + 1 + 1 + 1.
                                                                             157 = (11 + 1) \times (11 + 1 + 1) + 1.
127 = (1+1)^{(1+1+1+1)} + 111.
                                                                             158 = (11 + 1 + 1)^{(1+1)} - 11.
128 = (1+1)^{((1+1)\times(1+1+1)+1)}.
                                                                             159 = (11 + 1 + 1)^{(1+1)} - 11 + 1.
                                                                             160 = (1+1) \times ((11-1-1)^{(1+1)} - 1).
129 = 11 \times (11 + 1) - 1 - 1 - 1.
                                                                             161 = (1+1) \times (11-1-1)^{(1+1)} - 1.
130 = (11 - 1) \times (11 + 1 + 1).
                                                                             162 = (1+1) \times (11-1-1)^{(1+1)}.
131 = 11 \times (11 + 1) - 1.
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163 = (1+1) \times (11-1-1)^{(1+1)} + 1.
                                                                                229 = (1+1) \times (111+1+1+1) + 1.
164 = (1+1) \times ((11-1-1)^{(1+1)} + 1).
                                                                                230 = (11 - 1) \times (11 + 11 + 1).
165 = 11 \times (11 + 1 + 1 + 1 + 1).
                                                                                231 = 11 \times (11 + 11 - 1).
                                                                                232 = 11^{(1+1)} + 111.
166 = 11 \times (11 + 1 + 1 + 1 + 1) + 1.
167 = (11 + 1 + 1)^{(1+1)} - 1 - 1.
                                                                                233 = (1+1) \times 111 + 11.
168 = (11 + 1 + 1)^{(1+1)} - 1.
                                                                                234 = (1+1) \times 111 + 11 + 1.
169 = (11 + 1 + 1)^{(1+1)}.
                                                                                235 = (1+1) \times (111+1) + 11.
170 = (11 + 1 + 1)^{(1+1)} + 1.
                                                                                236 = (1+1) \times (111+1) + 11 + 1.
171 = (11 + 1 + 1)^{(1+1)} + 1 + 1.
                                                                                237 = (1+1) \times (111+1+1) + 11.
172 = (11 + 1 + 1)^{(1+1)} + 1 + 1 + 1.
                                                                                238 = (1+1) \times (11^{(1+1)} - 1 - 1).
                                                                                239 = (1+1) \times (11^{(1+1)} - 1) - 1.
173 = (11 + 1 + 1)^{(1+1)} + 1 + 1 + 1 + 1.
174 = (1+1) \times (111 - (1+1) \times (11+1)).
                                                                                240 = (1+1) \times (11^{(1+1)} - 1).
175 = 11 \times (1+1)^{(1+1+1+1)} - 1.
                                                                                241 = (1+1) \times 11^{(1+1)} - 1.
176 = 11 \times (1+1)^{(1+1+1+1)}.
                                                                                242 = (1+1) \times 11^{(1+1)}.
177 = 11 \times (1+1)^{(1+1+1+1)} + 1.
                                                                                243 = (1+1) \times 11^{(1+1)} + 1.
                                                                                244 = (1+1) \times (11^{(1+1)} + 1).
178 = (1+1) \times (111-11-11).
179 = (11 + 1 + 1)^{(1+1)} + 11 - 1.
                                                                                245 = (1+1) \times (11^{(1+1)} + 1) + 1.
                                                                                246 = (1+1) \times (11^{(1+1)} + 1 + 1).
180 = (11 + 1 + 1)^{(1+1)} + 11.
181 = (11 + 1 + 1)^{(1+1)} + 11 + 1.
                                                                                247 = (1+1) \times (11^{(1+1)} + 1 + 1) + 1.
                                                                                248 = (1+1) \times (11^{(1+1)} + 1 + 1 + 1).
182 = (11 + 1 + 1) \times (11 + 1 + 1 + 1).
                                                                                249 = (1+1) \times (11^{(1+1)} + 1 + 1 + 1) + 1.
183 = (11 + 1 + 1) \times (11 + 1 + 1 + 1) + 1.
184 = (1+1) \times ((11-1-1)^{(1+1)} + 11).
                                                                                250 = (11 - 1) \times ((1 + 1) \times (11 + 1) + 1).
                                                                                251 = (1+1) \times (11^{(1+1)} - 1) + 11.
185 = (11 + 1 + 1 + 1)^{(1+1)} - 11.
186 = ((1+1)^{11} - 1 - 1)/11.
                                                                                252 = (11 + 1) \times (11 + 11 - 1).
187 = ((1+1)^{11} - 1 - 1)/11 + 1.
                                                                                253 = 11 \times (11 + 11 + 1).
188 = ((1+1)^{11} - 1 - 1)/11 + 1 + 1.
                                                                                254 = 11 \times (11 + 11 + 1) + 1.
                                                                                255 = (11+1)^{(1+1)} + 111.
189 = (11 - 1 - 1) \times (11 + 11 - 1).
                                                                                256 = (1+1)^{((1+1)^{(1+1+1)})}.
190 = (11-1) \times ((1+1) \times (11-1) - 1).
                                                                                257 = (1+1)^{((1+1)^{(1+1+1)})} + 1.
191 = (11-1) \times ((1+1) \times (11-1) - 1) + 1.
192 = (11 - 1 - 1)^{(1+1)} + 111.
                                                                                258 = (1+1)^{((1+1)^{(1+1+1)})} + 1 + 1.
193 = (11 - 1 - 1)^{(1+1)} + 111 + 1.
                                                                                259 = (1+1)^{((1+1)^{(1+1+1)})} + 1 + 1 + 1.
194 = (11 + 1 + 1 + 1)^{(1+1)} - 1 - 1.
                                                                                260 = (1+1) \times (11-1) \times (11+1+1).
195 = (11 + 1 + 1 + 1)^{(1+1)} - 1.
                                                                                261 = (1+1) \times (11 \times (11+1) - 1) - 1.
196 = (11 + 1 + 1 + 1)^{(1+1)}.
                                                                                262 = (1+1) \times (11 \times (11+1) - 1).
197 = (11 + 1 + 1 + 1)^{(1+1)} + 1.
                                                                                263 = (1+1) \times 11 \times (11+1) - 1.
198 = (1+1) \times 11 \times (11-1-1).
                                                                                264 = (1+1) \times 11 \times (11+1).
199 = (1+1) \times (11-1)^{(1+1)} - 1.
                                                                                265 = (1 + 1) \times 11 \times (11 + 1) + 1.
200 = (1+1) \times (11-1)^{(1+1)}.
                                                                                266 = (1+1) \times (11 \times (11+1) + 1).
201 = (1+1) \times (11-1)^{(1+1)} + 1.
                                                                                267 = (1+1) \times (11 \times (11+1) + 1) + 1.
202 = (1+1) \times ((11-1)^{(1+1)} + 1).
                                                                                268 = (1+1) \times (11 \times (11+1) + 1 + 1).
203 = (1+1) \times ((11-1)^{(1+1)} + 1) + 1.
                                                                                269 = (1+1) \times (11 \times (11+1) + 1 + 1) + 1.
204 = (1+1) \times ((11-1)^{(1+1)} + 1 + 1).
                                                                                270 = (11 - 1) \times (1 + 1 + 1)^{(1+1+1)}.
205 = ((1+1)^{11} + 1 + 1)/(11 - 1).
                                                                                271 = (11 - 1) \times (1 + 1 + 1)^{(1+1+1)} + 1.
206 = ((1+1)^{11} + 1 + 1)/(11 - 1) + 1.
                                                                                272 = (11 + 1 + 1) \times (11 + 11 - 1) - 1.
207 = (11 + 1 + 1 + 1)^{(1+1)} + 11.
                                                                                273 = (11 + 1 + 1) \times (11 + 11 - 1).
208 = (1+1) \times (111-1) - 11 - 1.
                                                                                274 = 11 \times ((1+1) \times (11+1) + 1) - 1.
209 = 11 \times ((1+1) \times (11-1) - 1).
                                                                                275 = 11 \times ((1+1) \times (11+1) + 1).
210 = (11 - 1) \times (11 + 11 - 1).
                                                                                276 = (11 + 1) \times (11 + 11 + 1).
211 = (1+1) \times 111 - 11.
                                                                                277 = (11+1) \times (11+11+1) + 1.
212 = (1 + 1) \times 111 - 11 + 1.
                                                                                278 = (1111 + 1)/(1 + 1 + 1 + 1).
213 = (1+1) \times (111+1) - 11.
                                                                                279 = (1111 + 1)/(1 + 1 + 1 + 1) + 1.
214 = (1+1) \times (111+1) - 11 + 1.
                                                                                280 = (11 + 1 + 1)^{(1+1)} + 111.
215 = (1+1) \times (111+1+1) - 11.
                                                                                281 = (11 + 1 + 1)^{(1+1)} + 111 + 1.
216 = (1+1) \times (111-1-1-1).
                                                                                282 = (1+1) \times ((11+1)^{(1+1)} - 1 - 1 - 1).
217 = (1+1) \times (111-1-1) - 1.
                                                                                283 = (1+1) \times ((11+1)^{(1+1)} - 1 - 1) - 1.
218 = (1+1) \times (111-1-1).
                                                                                284 = (1+1) \times ((11+1)^{(1+1)} - 1 - 1).
219 = (1+1) \times (111-1) - 1.
                                                                                285 = (1+1) \times 11 \times (11+1+1) - 1.
220 = (1+1) \times (111-1).
                                                                                286 = (1+1) \times 11 \times (11+1+1).
221 = (1+1) \times 111 - 1.
                                                                                287 = (1+1) \times (11+1)^{(1+1)} - 1.
222 = (1 + 1) \times 111.
                                                                                288 = (1+1) \times (11+1)^{(1+1)}.
223 = (1+1) \times 111 + 1.
                                                                                289 = (1+1) \times (11+1)^{(1+1)} + 1.
224 = (1+1) \times (111+1).
                                                                                290 = (1+1) \times ((11+1)^{(1+1)} + 1).
225 = (1+1) \times (111+1) + 1.
                                                                                291 = (1+1) \times ((11+1)^{(1+1)} + 1) + 1.
226 = (1+1) \times (111+1+1).
                                                                                292 = (1+1) \times ((11+1)^{(1+1)} + 1) + 1 + 1.
227 = (1+1) \times (111+1+1) + 1.
                                                                                293 = (1+1) \times ((11+1)^{(1+1)} + 1) + 1 + 1 + 1.
228 = (1+1) \times (111+1+1+1).
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294 = (1+1) \times ((11+1)^{(1+1)} + 1) + 1 + 1 + 1 + 1.
                                                                                360 = (1 + 1 + 1) \times (11^{(1+1)} - 1).
295 = 11 \times (1+1+1)^{(1+1+1)} - 1 - 1.
                                                                                361 = ((1+1) \times (11-1) - 1)^{(1+1)}.
296 = 11 \times (1 + 1 + 1)^{(1+1+1)} - 1.
                                                                                362 = (1 + 1 + 1) \times 11 \times 11 - 1.
297 = 11 \times (1 + 1 + 1)^{(1+1+1)}.
                                                                                363 = (1 + 1 + 1) \times 11 \times 11.
298 = 11 \times (1 + 1 + 1)^{(1+1+1)} + 1.
                                                                                364 = (1 + 1 + 1) \times 11 \times 11 + 1.
299 = (1+1) \times (11+1)^{(1+1)} + 11.
                                                                                365 = (1 + 1 + 1) \times 11 \times 11 + 1 + 1.
300 = (1 + 1 + 1) \times (11 - 1)^{(1+1)}.
                                                                                366 = (1+1+1) \times (11^{(1+1)}+1).
301 = (1+1+1) \times (11-1)^{(1+1)} + 1.
                                                                                367 = (1+1+1) \times (11^{(1+1)}+1) + 1.
302 = (1 + 1 + 1) \times (11 - 1)^{(1+1)} + 1 + 1.
                                                                                368 = (1+1+1) \times (11^{(1+1)}+1) + 1 + 1.
303 = (1+1+1) \times ((11-1)^{(1+1)} + 1).
                                                                                369 = (1+1+1) \times (11^{(1+1)} + 1 + 1).
304 = (1+1+1) \times ((11-1)^{(1+1)} + 1) + 1.
                                                                                370 = (1111 - 1)/(1 + 1 + 1).
305 = (11 \times 111 - 1)/(1 + 1 + 1 + 1).
                                                                                371 = (1111 - 1)/(1 + 1 + 1) + 1.
306 = (1+1) \times (11 \times (11+1+1+1) - 1).
                                                                                372 = (1111 - 1)/(1 + 1 + 1) + 1 + 1.
307 = 111 + (11 + 1 + 1 + 1)^{(1+1)}.
                                                                                373 = (11 + 11)^{(1+1)} - 111.
308 = 11 \times (1+1) \times (11+1+1+1).
                                                                                374 = 11 \times (11 \times (1 + 1 + 1) + 1).
309 = 11 \times (1+1) \times (11+1+1+1) + 1.
                                                                                375 = 11 \times (11 \times (1 + 1 + 1) + 1) + 1.
310 = (1+1) \times ((11+1)^{(1+1)} + 11).
                                                                                376 = 11 \times (11 \times (1 + 1 + 1) + 1) + 1 + 1.
311 = (1+1) \times ((11+1)^{(1+1)} + 11) + 1.
                                                                                377 = (1+1+1) \times (11^{(1+1)}+1)+11.
312 = (1+1) \times (11+1) \times (11+1+1).
                                                                                378 = (1 + 1 + 1) \times (11^{(1+1)} + 1) + 11 + 1.
                                                                                379 = (11 - 1) \times (111/(1 + 1 + 1) + 1) - 1.
313 = (1+1) \times (11+1) \times (11+1+1) + 1.
314 = (1+1) \times ((11+1) \times (11+1+1) + 1).
                                                                                380 = (11 - 1) \times (111/(1 + 1 + 1) + 1).
315 = ((1+1)^{(11+1)} - 1)/(11+1+1).
                                                                                381 = (1111 - 1)/(1 + 1 + 1) + 11.
316 = (1+1) \times ((11+1+1)^{(1+1)} - 11).
                                                                                382 = (1111 - 1)/(1 + 1 + 1) + 11 + 1.
317 = (1+1) \times ((11+1+1)^{(1+1)} - 11) + 1.
                                                                                383 = (11 + 1) \times (11 \times (1 + 1 + 1) - 1) - 1.
318 = (1+1+1) \times (111-1) - 11 - 1.
                                                                                384 = (11 + 1) \times (11 \times (1 + 1 + 1) - 1).
319 = 11 \times ((1+1+1) \times (11-1) - 1).
                                                                                385 = 11 \times (11 \times (1 + 1 + 1) + 1 + 1).
320 = (11 - 1) \times (11 \times (1 + 1 + 1) - 1).
                                                                                386 = 11 \times (11 \times (1 + 1 + 1) + 1 + 1) + 1.
321 = 111 \times (1 + 1 + 1) - 11 - 1.
                                                                                387 = 11 \times (11 \times (1 + 1 + 1) + 1 + 1) + 1 + 1.
                                                                                388 = ((1+1) \times (11-1))^{(1+1)} - 11 - 1.
322 = 111 \times (1 + 1 + 1) - 11.
                                                                                389 = ((1+1) \times (11-1))^{(1+1)} - 11.
323 = 111 \times (1 + 1 + 1) - 11 + 1.
                                                                                390 = ((1+1) \times (11-1))^{(1+1)} - 11 + 1.
324 = ((1+1) \times (11-1-1))^{(1+1)}.
                                                                                391 = (1+1)^{(11-1-1)} - 11^{(1+1)}.
325 = ((1+1) \times (11-1-1))^{(1+1)} + 1.
326 = (1+1+1) \times (111-1-1) - 1.
                                                                                392 = (1+1) \times (11+1+1+1)^{(1+1)}.
327 = (1+1+1) \times (111-1-1).
                                                                                393 = (1 + 1 + 1) \times (11 \times (11 + 1) - 1).
328 = (1 + 1 + 1) \times (111 - 1 - 1) + 1.
                                                                                394 = (1 + 1 + 1) \times (11 \times (11 + 1) - 1) + 1.
329 = (1 + 1 + 1) \times (111 - 1) - 1.
                                                                                395 = (1+1+1) \times (11+1) \times 11-1.
330 = (1 + 1 + 1) \times (111 - 1).
                                                                                396 = (1 + 1 + 1) \times (11 + 1) \times 11.
331 = (1 + 1 + 1) \times (111 - 1) + 1.
                                                                                397 = (1+1+1) \times (11+1) \times 11+1.
                                                                                398 = ((1+1) \times (11-1))^{(1+1)} - 1 - 1.
332 = (1 + 1 + 1) \times 111 - 1.
                                                                                399 = ((1+1) \times (11-1))^{(1+1)} - 1.
333 = (1 + 1 + 1) \times 111.
                                                                                400 = ((1+1) \times (11-1))^{(1+1)}.
334 = (1 + 1 + 1) \times 111 + 1.
                                                                                401 = ((1+1) \times (11-1))^{(1+1)} + 1.
335 = (1 + 1 + 1) \times 111 + 1 + 1.
                                                                                402 = ((1+1) \times (11-1))^{(1+1)} + 1 + 1.
336 = (1 + 1 + 1) \times (111 + 1).
                                                                                403 = ((1+1) \times (11-1))^{(1+1)} + 1 + 1 + 1.
337 = (1 + 1 + 1) \times (111 + 1) + 1.
338 = (1+1) \times (11+1+1)^{(1+1)}.
                                                                                404 = (1+1) \times (1+1) \times ((11-1)^{(1+1)} + 1).
339 = (1 + 1 + 1) \times (111 + 1 + 1).
                                                                                405 = 11 \times 111/(1+1+1) - 1 - 1.
340 = (1+1+1) \times (111+1+1) + 1.
                                                                                406 = 11 \times 111/(1+1+1) - 1.
341 = (1+1+1) \times (111-1) + 11.
                                                                                407 = 11 \times 111/(1+1+1).
342 = (1+1+1) \times (111+1+1+1).
                                                                                408 = 11 \times 111/(1+1+1) + 1.
343 = (1 + 1 + 1) \times 111 + 11 - 1.
                                                                                409 = 11 \times 111/(1+1+1) + 1 + 1.
                                                                                410 = ((1+1) \times (11-1))^{(1+1)} + 11 - 1.
344 = (1+1+1) \times 111 + 11.
                                                                                411 = ((1+1) \times (11-1))^{(1+1)} + 11.
345 = (1+1+1) \times 111 + 11 + 1.
                                                                                412 = ((1+1) \times (11-1))^{(1+1)} + 11 + 1.
346 = (1+1+1) \times 111 + 11 + 1 + 1.
                                                                                413 = ((1+1) \times (11-1))^{(1+1)} + 11 + 1 + 1.
347 = (1+1+1) \times (111+1) + 11.
348 = (1+1+1) \times (111+1) + 11 + 1.
                                                                                414 = (1+1) \times ((11+1+1+1)^{(1+1)} + 11).
349 = (1+1) \times (11+1+1)^{(1+1)} + 11.
                                                                                415 = (11 + 1 + 1) \times (11 \times (1 + 1 + 1) - 1) - 1.
350 = (1+1+1) \times (111+1+1) + 11.
                                                                                416 = (11 + 1 + 1) \times (11 \times (1 + 1 + 1) - 1).
351 = 11 \times (11 \times (1 + 1 + 1) - 1) - 1.
                                                                                417 = 11 \times (111/(1+1+1)+1)-1.
352 = 11 \times (11 \times (1 + 1 + 1) - 1).
                                                                                418 = 11 \times (111/(1+1+1)+1).
353 = 11 \times (11 \times (1 + 1 + 1) - 1) + 1.
                                                                                419 = 11 \times (111/(1+1+1)+1)+1.
354 = 11 \times (11 \times (1 + 1 + 1) - 1) + 1 + 1.
                                                                                420 = (1+1) \times (11-1) \times (11+11-1).
355 = (1 + 1 + 1) \times 111 + 11 + 11.
                                                                                421 = (1+1+1) \times (11+1)^{(1+1)} - 11.
356 = (1+1+1) \times (11^{(1+1)} - 1 - 1) - 1.
                                                                                422 = (1+1) \times ((1+1) \times 111 - 11).
357 = (1+1+1) \times (11^{(1+1)} - 1 - 1).
                                                                                423 = (1+1) \times ((1+1) \times 111 - 11) + 1.
358 = (1 + 1 + 1) \times (11^{(1+1)} - 1 - 1) + 1.
                                                                                424 = (1+1) \times ((1+1) \times 111 - 11 + 1).
359 = (1 + 1 + 1) \times (11^{(1+1)} - 1) - 1.
                                                                                425 = (1+1) \times ((1+1) \times 111 - 11 + 1) + 1.
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492 = (1+1) \times (1+1) \times (11^{(1+1)} + 1 + 1).
426 = (1+1) \times ((1+1) \times (111+1) - 11).
                                                                               493 = (11 + 11)^{(1+1)} + 11 - 1 - 1.
427 = (1+1) \times ((1+1) \times (111+1) - 11) + 1.
                                                                               494 = (11 + 11)^{(1+1)} + 11 - 1.
428 = (1+1+1) \times (11+1+1) \times 11-1.
                                                                               495 = (11 + 11)^{(1+1)} + 11.
429 = (1 + 1 + 1) \times (11 + 1 + 1) \times 11.
                                                                               496 = (11 + 11)^{(1+1)} + 11 + 1.
430 = (11 + 11 - 1)^{(1+1)} - 11.
431 = (1+1+1) \times (11+1)^{(1+1)} - 1.
                                                                               497 = (11 + 11)^{(1+1)} + 11 + 1 + 1.
                                                                               498 = (11-1)^{(1+1+1)}/(1+1) - 1 - 1.
432 = (1+1+1) \times (11+1)^{(1+1)}.
433 = (1+1+1) \times (11+1)^{(1+1)} + 1.
                                                                               499 = (11 - 1)^{(1+1+1)}/(1+1) - 1.
434 = (1+1+1) \times (11+1)^{(1+1)} + 1 + 1.
                                                                               500 = (11 - 1)^{(1+1+1)}/(1+1).
                                                                               501 = (1+1)^{(11-1-1)} - 11.
435 = (1 + 1 + 1) \times ((11 + 1)^{(1+1)} + 1).
                                                                               502 = (1+1)^{(11-1-1)} - 11 + 1.
436 = (1+1) \times (1+1) \times (111-1-1).
                                                                               503 = (1+1)^{(11-1-1)} - 11 + 1 + 1.
437 = (1+1) \times (1+1) \times (111-1-1) + 1.
438 = (1+1) \times ((1+1) \times (111-1) - 1).
439 = (11+11-1)^{(1+1)} - 1 - 1.
                                                                               504 = (1+1) \times (11+1) \times (11+11-1).
                                                                               505 = (11111 - 1)/(11 + 11).
440 = (1+1) \times (1+1) \times (111-1).
                                                                               506 = (1+1) \times 11 \times (11+11+1).
441 = (11 + 11 - 1)^{(1+1)}.
                                                                               507 = (1+1+1) \times (11+1+1)^{(1+1)}.
442 = (11 + 11 - 1)^{(1+1)} + 1.
                                                                               508 = (1+1+1) \times (11+1+1)^{(1+1)} + 1.
                                                                               509 = (1+1)^{(11-1)} - 1 - 1 - 1.
443 = (1+1) \times (1+1) \times 111 - 1.
                                                                               510 = (1+1)^{(11-1-1)} - 1 - 1.
444 = (1+1) \times (1+1) \times 111.
                                                                               511 = (1+1)^{(11-1-1)} - 1.
445 = (1+1) \times (1+1) \times 111 + 1.
                                                                               512 = (1+1)^{(11-1-1)}.
446 = (1+1) \times ((1+1) \times 111 + 1).
                                                                               513 = (1+1)^{(11-1-1)} + 1.
447 = (1+1) \times ((1+1) \times 111 + 1) + 1.
                                                                               514 = (1+1)^{(11-1-1)} + 1 + 1.
448 = (1+1) \times (1+1) \times (111+1).
                                                                               515 = (1+1)^{(11-1-1)} + 1 + 1 + 1.
449 = (1+1) \times (1+1) \times (111+1) + 1.
                                                                               516 = (1+1)^{(11-1-1)} + 1 + 1 + 1 + 1.
450 = (1+1) \times ((1+1) \times (111+1) + 1).
                                                                               517 = 11 \times ((1+1) \times (11+11+1)+1).
451 = (1+1) \times ((1+1) \times (111+1) + 1) + 1.
452 = (11 + 11 - 1)^{(1+1)} + 11.
                                                                               518 = (11 + 11 + 1)^{(1+1)} - 11.
453 = (11 + 11 - 1)^{(1+1)} + 11 + 1.
                                                                               519 = (11 + 11 + 1)^{(1+1)} - 11 + 1.
                                                                               520 = (11 + 11 + 1)^{(1+1)} - 11 + 1 + 1.
454 = (1+1) \times (1+1) \times 111 + 11 - 1.
                                                                               521 = (1+1)^{(11-1-1)} + 11 - 1 - 1.
455 = (1+1) \times (1+1) \times 111 + 11.
                                                                               522 = (1+1)^{(11-1-1)} + 11 - 1.
456 = (1+1) \times (1+1) \times 111 + 11 + 1.
                                                                               523 = (1+1)^{(11-1-1)} + 11.
457 = (1+1) \times ((1+1) \times 111 + 1) + 11.
458 = (1+1) \times ((1+1) \times 111 + 1) + 11 + 1.
                                                                               524 = (1+1)^{(11-1-1)} + 11 + 1.
459 = (1+1) \times (1+1) \times (111+1) + 11.
                                                                               525 = (1+1)^{(11-1-1)} + 11 + 1 + 1.
460 = (1+1) \times (11-1) \times (11+11+1).
                                                                               526 = (1+1) \times ((1+1) \times 11 \times (11+1) - 1).
                                                                               527 = (11 + 11 + 1)^{(1+1)} - 1 - 1.
461 = (1+1) \times 11 \times (11+11-1) - 1.
                                                                               528 = (11 + 11 + 1)^{(1+1)} - 1.
462 = (1+1) \times 11 \times (11+11-1).
                                                                               529 = (11 + 11 + 1)^{(1+1)}.
463 = (1+1) \times 11 \times (11+11-1) + 1.
464 = (1+1) \times (11^{(1+1)} + 111).
                                                                               530 = (11 + 11 + 1)^{(1+1)} + 1.
465 = (1+1) \times (11^{(1+1)} + 111) + 1.
                                                                               531 = (11 + 11 + 1)^{(1+1)} + 1 + 1.
                                                                               532 = (11 + 11 + 1)^{(1+1)} + 1 + 1 + 1.
466 = (1+1) \times ((1+1) \times 111 + 11).
                                                                               533 = (11 + 11 + 1)^{(1+1)} + 1 + 1 + 1 + 1.
467 = (1+1) \times ((1+1) \times 111 + 11) + 1.
                                                                               534 = (1+1)^{(11-1-1)} + 11 + 11.
468 = (1+1) \times ((1+1) \times 111 + 11 + 1).
                                                                               535 = (1+1)^{(11-1-1)} + 11 + 11 + 1.
469 = (1+1) \times ((1+1) \times 111 + 11 + 1) + 1.
                                                                               536 = (1+1) \times (1+1) \times (11 \times (11+1) + 1 + 1).
470 = (1+1) \times ((1+1) \times (111+1) + 11).
471 = (11 + 11)^{(1+1)} - 11 - 1 - 1.
                                                                               537 = (1+1)^{(11-1-1)} + (1+1) \times (11+1) + 1.
472 = (11 + 11)^{(1+1)} - 11 - 1.
                                                                               538 = (11 + 11 + 1)^{(1+1)} + 11 - 1 - 1.
473 = (11 + 11)^{(1+1)} - 11.
                                                                               539 = (11 + 11 + 1)^{(1+1)} + 11 - 1.
474 = (11 + 11)^{(1+1)} - 11 + 1.
                                                                               540 = (11 + 11 + 1)^{(1+1)} + 11.
475 = (11 + 11)^{(1+1)} - 11 + 1 + 1.
                                                                               541 = (11 + 11 + 1)^{(1+1)} + 11 + 1.
                                                                               542 = (11 + 11 + 1)^{(1+1)} + 11 + 1 + 1.
476 = (1+1) \times ((1+1) \times (11^{(1+1)} - 1 - 1)).
477 = (1+1) \times ((1+1) \times (11^{(1+1)} - 1 - 1)) + 1.
                                                                               543 = (1111 - 1)/(1 + 1) - 11 - 1.
478 = (1+1) \times (((1+1) \times (11^{(1+1)} - 1 - 1)) + 1).
                                                                               544 = (1111 - 1)/(1 + 1) - 11.
479 = (1+1) \times ((1+1) \times (11^{(1+1)} - 1)) - 1.
                                                                               545 = (1111 + 1)/(1 + 1) - 11.
                                                                               546 = (1111 + 1)/(1 + 1) - 11 + 1.
480 = (1+1) \times (1+1) \times (11^{(1+1)} - 1).
481 = (11 + 11)^{(1+1)} - 1 - 1 - 1.
                                                                               547 = (1111 + 1)/(1 + 1) - 11 + 1 + 1.
482 = (11 + 11)^{(1+1)} - 1 - 1.
                                                                               548 = (1111 - 11)/(1 + 1) - 1 - 1.
483 = (11 + 11)^{(1+1)} - 1.
                                                                               549 = (1111 - 11)/(1 + 1) - 1.
484 = (11 + 11)^{(1+1)}.
                                                                               550 = (1111 - 11)/(1 + 1).
485 = (11 + 11)^{(1+1)} + 1.
                                                                               551 = (1111 - 11)/(1 + 1) + 1.
486 = (11 + 11)^{(1+1)} + 1 + 1.
                                                                               552 = (1111 - 11)/(1 + 1) + 1 + 1.
487 = (11+11)^{(1+1)} + 1 + 1 + 1.
                                                                               553 = (1111 - 1)/(1 + 1) - 1 - 1.
488 = (1+1) \times (1+1) \times (11^{(1+1)} + 1).
                                                                               554 = (1111 - 1)/(1 + 1) - 1.
489 = (1+1) \times (1+1) \times (11^{(1+1)} + 1) + 1.
                                                                               555 = (1111 - 1)/(1 + 1).
490 = (1+1) \times ((1+1) \times (11^{(1+1)} + 1) + 1).
                                                                               556 = (1111 + 1)/(1 + 1).
491 = (1+1) \times ((1+1) \times (11^{(1+1)} + 1) + 1) + 1.
                                                                               557 = (1111 + 1)/(1 + 1) + 1.
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624 = ((1+1) \times (11+1) + 1)^{(1+1)} - 1.
558 = (1111 + 1)/(1 + 1) + 1 + 1.
559 = (1111 + 1)/(1 + 1) + 1 + 1 + 1.
                                                                              625 = ((1+1) \times (11+1) + 1)^{(1+1)}.
                                                                              626 = ((1+1) \times (11+1) + 1)^{(1+1)} + 1.
560 = (11 - 1) \times (111 + 1)/(1 + 1).
561 = (1111 + 11)/(1 + 1).
                                                                              627 = 11 \times ((111 + 1)/(1 + 1) + 1).
562 = (1111 + 11)/(1 + 1) + 1.
                                                                              628 = 11 \times ((111 + 1)/(1 + 1) + 1) + 1.
                                                                              629 = 11 \times ((111 + 1)/(1 + 1) + 1) + 1 + 1.
563 = (1111 + 11)/(1 + 1) + 1 + 1.
564 = ((1+1) \times (11+1))^{(1+1)} - 11 - 1.
                                                                              630 = (1 + 1 + 1) \times (11 - 1) \times (11 + 11 - 1).
565 = ((1+1) \times (11+1))^{(1+1)} - 11.
                                                                              631 = (1+1+1) \times (11-1) \times (11+11-1) + 1.
                                                                              632 = 11^{(1+1)} + (1+1)^{(11-1-1)} - 1.
566 = (1111 - 1)/(1 + 1) + 11.
567 = (1111 + 1)/(1 + 1) + 11.
                                                                              633 = (1+1+1) \times ((1+1) \times 111 - 11).
                                                                              634 = 11^{(1+1)} + (1+1)^{(11-1-1)} + 1.
568 = (1111 + 1)/(1 + 1) + 11 + 1.
569 = (1111 + 1)/(1 + 1) + 11 + 1 + 1.
                                                                              635 = ((1+1) \times (11+1) + 1)^{(1+1)} + 11 - 1.
                                                                              636 = ((1+1) \times (11+1) + 1)^{(1+1)} + 11.
570 = (11 - 1) \times ((111 + 1)/(1 + 1) + 1).
                                                                              637 = ((1+1) \times (11+1) + 1)^{(1+1)} + 11 + 1.
571 = (11 - 1) \times ((111 + 1)/(1 + 1) + 1) + 1.
                                                                              638 = 11 \times ((111 + 1)/(1 + 1) + 1 + 1).
572 = (1111 + 11)/(1 + 1) + 11.
573 = ((1+1) \times (11+1))^{(1+1)} - 1 - 1 - 1.
                                                                              639 = 11 \times ((111 + 1)/(1 + 1) + 1 + 1) + 1.
574 = ((1+1) \times (11+1))^{(1+1)} - 1 - 1.
                                                                              640 = (11 + 11 + 1)^{(1+1)} + 111.
                                                                              641 = (11 + 11 + 1)^{(1+1)} + 111 + 1.
575 = ((1+1) \times (11+1))^{(1+1)} - 1.
576 = ((1+1) \times (11+1))^{(1+1)}.
                                                                              642 = (1+1) \times ((1+1+1) \times 111 - 11 - 1).
577 = ((1+1) \times (11+1))^{(1+1)} + 1.
                                                                              643 = (1+1) \times ((1+1+1) \times 111 - 11) - 1.
578 = ((1+1) \times (11+1))^{(1+1)} + 1 + 1.
                                                                              644 = (1+1) \times ((1+1+1) \times 111 - 11).
579 = ((1+1) \times (11+1))^{(1+1)} + 1 + 1 + 1.
                                                                              645 = (1+1) \times ((1+1+1) \times 111 - 11) + 1.
580 = (1+1) \times (1+1) \times ((11+1)^{(1+1)} + 1).
                                                                              646 = (1+1) \times ((1+1+1) \times 111 - 11 + 1).
581 = (1+1) \times (1+1) \times ((11+1)^{(1+1)} + 1) + 1.
                                                                              647 = (1+1) \times ((1+1) \times (11-1-1))^{(1+1)} - 1.
                                                                              648 = (1+1) \times ((1+1) \times (11-1-1))^{(1+1)}.
582 = 11 \times ((111 - 1)/(1 + 1) - 1 - 1) - 1.
                                                                              649 = 11 \times ((11^{(1+1)} - 1)/(1+1) - 1).
583 = 11 \times ((111 - 1)/(1 + 1) - 1 - 1).
                                                                              650 = 11 \times ((11^{(1+1)} - 1)/(1+1) - 1) + 1.
584 = 11 \times ((111 - 1)/(1 + 1) - 1 - 1) + 1.
585 = ((1+1) \times (11+1))^{(1+1)} + 11 - 1 - 1.
                                                                              651 = (1+1+1) \times ((1+1) \times (111-1-1) - 1).
586 = ((1+1) \times (11+1))^{(1+1)} + 11 - 1.
                                                                              652 = (1+1) \times ((1+1+1) \times (111-1-1) - 1).
587 = ((1+1) \times (11+1))^{(1+1)} + 11.
                                                                              653 = (11^{(1+1+1)} - 1)/(1+1) - 11 - 1.
588 = ((1+1) \times (11+1))^{(1+1)} + 11 + 1.
                                                                              654 = (1+1) \times (1+1+1) \times (111-1-1).
589 = ((1+1) \times (11+1))^{(1+1)} + 11 + 1 + 1.
                                                                              655 = (1+1) \times (1+1+1) \times 111 - 11.
590 = (11 - 1) \times ((11^{(1+1)} - 1)/(1+1) - 1).
                                                                              656 = (1+1) \times (1+1+1) \times 111 - 11 + 1.
591 = (1+1+1) \times ((11+1+1+1)^{(1+1)}+1).
                                                                              657 = (1+1+1) \times ((1+1) \times (111-1) - 1).
592 = (1+1) \times (11 \times (1+1+1)^{(1+1+1)} - 1).
                                                                              658 = (1+1) \times ((1+1+1) \times (111-1) - 1).
593 = 11 \times ((111 - 1)/(1 + 1) - 1) - 1.
                                                                              659 = (1+1) \times (1+1+1) \times (111-1) - 1.
594 = 11 \times ((111 - 1)/(1 + 1) - 1).
                                                                              660 = (1+1) \times (1+1+1) \times (111-1).
595 = (11 + 11)^{(1+1)} + 111.
                                                                              661 = (1+1) \times (1+1+1) \times (111-1) + 1.
596 = (11 + 11)^{(1+1)} + 111 + 1.
                                                                              662 = (1+1) \times ((1+1+1) \times (111-1) + 1).
597 = (11 + 11)^{(1+1)} + 111 + 1 + 1.
                                                                              663 = (1+1+1) \times ((1+1) \times 111 - 1).
598 = ((1+1) \times (11+1))^{(1+1)} + 11 + 11.
                                                                              664 = (1+1) \times ((1+1+1) \times 111 - 1).
599 = 1111 - (1+1)^{(11-1-1)}.
                                                                              665 = (11^{(1+1+1)} - 1)/(1+1).
600 = (1+1) \times (1+1+1) \times (11-1)^{(1+1)}.
                                                                              666 = (1+1) \times (1+1+1) \times 111.
601 = (1+1) \times (1+1+1) \times (11-1)^{(1+1)} + 1.
                                                                              667 = (1+1) \times (1+1+1) \times 111 + 1.
602 = (1+1) \times ((1+1+1) \times (11-1)^{(1+1)} + 1).
                                                                              668 = (1+1) \times ((1+1+1) \times 111+1).
603 = 11 \times (111 - 1)/(1 + 1) - 1 - 1.
                                                                              669 = (1 + 1 + 1) \times ((1 + 1) \times 111 + 1).
604 = 11 \times (111 - 1)/(1 + 1) - 1.
                                                                              670 = (1 + 1 + 1) \times ((1 + 1) \times 111 + 1) + 1.
                                                                              671 = 11 \times (11^{(1+1)} + 1)/(1+1).
605 = 11 \times (111 - 1)/(1 + 1).
606 = 11 \times (111 - 1)/(1 + 1) + 1.
                                                                              672 = (1+1) \times (1+1+1) \times (111+1).
607 = 11 \times (111 - 1)/(1 + 1) + 1 + 1.
                                                                              673 = (1+1) \times (1+1+1) \times (111+1) + 1.
                                                                              674 = (1+1) \times ((1+1+1) \times (111+1) + 1).
608 = (11 \times 111 - 1)/(1 + 1) - 1 - 1.
                                                                              675 = ((1+1) \times (11+1+1))^{(1+1)} - 1.
609 = (11 \times 111 - 1)/(1 + 1) - 1.
610 = (11 \times 111 - 1)/(1 + 1).
                                                                              676 = ((1+1) \times (11+1+1))^{(1+1)}.
                                                                              677 = ((1+1) \times (11+1+1))^{(1+1)} + 1.
611 = (11 \times 111 + 1)/(1 + 1).
                                                                              678 = ((1+1) \times (11+1+1))^{(1+1)} + 1 + 1.
612 = (11 \times 111 + 1)/(1 + 1) + 1.
                                                                              679 = ((1+1)^{11} - 11)/(1+1+1).
613 = (11 \times 111 + 1)/(1 + 1) + 1 + 1.
                                                                              680 = ((1+1)^{11} - 11)/(1+1+1) + 1.
614 = 11 \times (111 + 1)/(1 + 1) - 1 - 1.
                                                                              681 = ((1+1)^{11} + 1)/(1+1+1) - 1 - 1.
615 = 11 \times (111 + 1)/(1 + 1) - 1.
                                                                              682 = ((1+1)^{11} - 1 - 1)/(1+1+1).
616 = 11 \times (111 + 1)/(1 + 1).
                                                                              683 = ((1+1)^{11} + 1)/(1+1+1).
617 = 11 \times (111 + 1)/(1 + 1) + 1.
                                                                              684 = ((1+1)^{11} + 1)/(1+1+1) + 1.
618 = 11 \times (111 + 1)/(1 + 1) + 1 + 1.
                                                                              685 = ((1+1)^{11}+1)/(1+1+1)+1+1.
619 = 11 \times (111 + 1)/(1 + 1) + 1 + 1 + 1.
                                                                              686 = ((1+1)^{11} + 11 - 1)/(1+1+1).
620 = (11 \times 111 - 1)/(1 + 1) + 11 - 1.
                                                                              687 = ((1+1) \times (11+1+1))^{(1+1)} + 11.
621 = (11 \times 111 - 1)/(1 + 1) + 11.
622 = (11 \times 111 + 1)/(1 + 1) + 11.
                                                                              688 = (1+1) \times ((1+1+1) \times 111 + 11).
623 = (1+1)^{(11-1-1)} + 111.
                                                                              689 = (1+1) \times ((1+1+1) \times 111 + 11) + 1.
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690 = ((1+1)^{11} - 11)/(1+1+1) + 11.
                                                                                  756 = (1 + 1 + 1) \times (11 + 1) \times (11 + 11 - 1).
691 = (1+1)^{(11-1)} - (1+1+1) \times 111.
                                                                                  757 = (1+1+1) \times (11+1) \times (11+11-1) + 1.
692 = 11 \times (1 + 1 + 1) \times (11 + 11 - 1) - 1.
                                                                                  758 = 11 \times (1 + 1 + 1) \times (11 + 11 + 1) - 1.
693 = 11 \times (1 + 1 + 1) \times (11 + 11 - 1).
                                                                                  759 = 11 \times (1 + 1 + 1) \times (11 + 11 + 1).
694 = ((1+1)^{11} + 1)/(1+1+1) + 11.
                                                                                  760 = 11 \times (1 + 1 + 1) \times (11 + 11 + 1) + 1.
695 = ((1+1)^{11} + 1)/(1+1+1) + 11 + 1.
                                                                                  761 = 11 \times (1 + 1 + 1) \times (11 + 11 + 1) + 1 + 1.
696 = (1+1+1) \times (11^{(1+1)} + 111).
                                                                                  762 = (1 + 1 + 1) \times (11 \times (11 + 11 + 1) + 1).
697 = (1+1+1) \times (11^{(1+1)} + 111) + 1.
                                                                                  763 = (111 - 1 - 1) \times (11 - 1 - 1 - 1 - 1).
698 = (1+1+1) \times ((1+1) \times 111 + 11) - 1.
                                                                                  764 = (111 - 1 - 1) \times (11 - 1 - 1 - 1 - 1) + 1.
                                                                                  765 = (1+1+1) \times ((11+1)^{(1+1)} + 111).
699 = (1+1+1) \times ((1+1) \times 111 + 11).
                                                                                 766 = 111 \times ((1+1) \times (1+1+1) + 1) - 11.
767 = (1+1+1) \times (1+1)^{((1+1)^{(1+1+1)})} - 1.
700 = (1+1+1) \times ((1+1) \times 111 + 11) + 1.
701 = (1+1+1) \times ((1+1) \times 111 + 11) + 1 + 1.
                                                                                  768 = (1+1+1) \times (1+1)^{((1+1)^{(1+1+1)})}.
702 = (1+1) \times (11 \times (11 \times (1+1+1) - 1) - 1).
703 = 11 \times (1+1)^{((1+1)\times(1+1+1))} - 1.
                                                                                  769 = (1+1+1) \times (1+1)^{((1+1)^{(1+1+1)})} + 1.
704 = 11 \times (1+1)^{((1+1)\times(1+1+1))}.
                                                                                  770 = 11 \times ((11 - 1 - 1)^{(1+1)} - 11).
705 = 11 \times (1+1)^{((1+1)\times(1+1+1))} + 1.
                                                                                  771 = 11 \times ((11 - 1 - 1)^{(1+1)} - 11) + 1.
706 = 11 \times (1+1)^{((1+1)\times(1+1+1))} + 1 + 1.
                                                                                  772 = 11 \times ((11 - 1 - 1)^{(1+1)} - 11) + 1 + 1.
707 = (11 - 1 - 1)^{(1+1+1)} - 11 - 11.
                                                                                  773 = ((1+1+1)^{(1+1+1)}+1)^{(1+1)}-11.
708 = (11+1) \times ((11^{(1+1)}-1)/(1+1)-1).
                                                                                  774 = ((1+1+1)^{(1+1+1)} + 1)^{(1+1)} - 11 + 1.
709 = 11 \times 111 - (1+1)^{(11-1-1)}
                                                                                  775 = 1111 - (1 + 1 + 1) \times (111 + 1).
710 = (11-1) \times ((11+1)^{(1+1)}/(1+1) - 1).
                                                                                  776 = 111 \times ((1+1) \times (1+1+1) + 1) - 1.
711 = 1111 - ((1+1) \times (11-1))^{(1+1)}.
                                                                                  777 = 111 \times ((1+1) \times (1+1+1) + 1).
712 = 1111 - ((1+1) \times (11-1))^{(1+1)} + 1.
                                                                                  778 = 111 \times ((1+1) \times (1+1+1) + 1) + 1.
713 = (11 + 11 + 1) \times ((1 + 1 + 1) \times (11 - 1) + 1).
                                                                                  779 = 111 \times ((1+1) \times (1+1+1) + 1) + 1 + 1.
714 = (1+1) \times (1+1+1) \times (11^{(1+1)} - 1 - 1).
                                                                                  780 = (11 - 1) \times (111 - 11 \times (1 + 1 + 1)).
715 = 11 \times ((1+1)^{((1+1)\times(1+1+1))} + 1).
                                                                                  781 = 11 \times ((11+1)^{(1+1)}/(1+1) - 1).
716 = (1+1)^{11} - 11^{(1+1+1)} - 1.
                                                                                  782 = 11 \times ((11+1)^{(1+1)}/(1+1) - 1) + 1.
717 = (1+1)^{11} - 11^{(1+1+1)}.
                                                                                  783 = ((1+1+1)^{(1+1+1)} + 1)^{(1+1)} - 1.
718 = (11 - 1 - 1)^{(1+1+1)} - 11.
                                                                                  784 = ((1+1+1)^{(1+1+1)}+1)^{(1+1)}.
719 = (11 - 1 - 1)^{(1+1+1)} - 11 + 1.
                                                                                  785 = ((1+1+1)^{(1+1+1)} + 1)^{(1+1)} + 1.
720 = (1+1) \times (1+1+1) \times (11^{(1+1)} - 1).
                                                                                  786 = ((1+1+1)^{(1+1+1)}+1)^{(1+1)}+1+1.
721 = (11^{(1+1+1)} + 111)/(1+1).
                                                                                  787 = ((1+1) \times (11+1+1))^{(1+1)} + 111.
722 = (1+1) \times ((1+1) \times (11-1) - 1)^{(1+1)}.
                                                                                  788 = 111 \times ((1+1) \times (1+1+1) + 1) + 11.
723 = (1+1+1) \times ((1+1) \times 11^{(1+1)} - 1).
                                                                                  789 = (1+1+1) \times ((1+1) \times 11 \times (11+1) - 1).
724 = (1+1) \times (11 \times 11 \times (1+1+1) - 1).
                                                                                  790 = (1+1) \times (11 \times (1+1+1) \times (11+1) - 1).
725 = (1+1) \times 11 \times 11 \times (1+1+1) - 1.
                                                                                  791 = 11 \times (11 + 1)^{(1+1)}/(1+1) - 1.
726 = (1+1) \times 11 \times 11 \times (1+1+1).
                                                                                  792 = 11 \times (11+1)^{(1+1)}/(1+1).
727 = (11 - 1 - 1)^{(1+1+1)} - 1 - 1.
                                                                                  793 = 11 \times (11+1)^{(1+1)}/(1+1) + 1.
728 = (11 - 1 - 1)^{(1+1+1)} - 1.
                                                                                  794 = 11 \times (11 + 1)^{(1+1)}/(1+1) + 1 + 1.
729 = (11 - 1 - 1)^{(1+1+1)}.
                                                                                  795 = 11 + ((1+1+1)^{(1+1+1)} + 1)^{(1+1)}.
730 = (11 - 1 - 1)^{(1+1+1)} + 1.
                                                                                  796 = (1+1) \times (((1+1) \times (11-1))^{(1+1)} - 1 - 1).
731 = (11 - 1 - 1)^{(1+1+1)} + 1 + 1.
                                                                                  797 = (11 \times ((11+1)^{(1+1)} + 1) - 1)/(1+1).
732 = (11 - 1 - 1)^{(1+1+1)} + 1 + 1 + 1.
                                                                                  798 = (1+1) \times (((1+1) \times (11-1))^{(1+1)} - 1).
733 = (11 - 1 - 1)^{(1+1+1)} + 1 + 1 + 1 + 1.
                                                                                  799 = (1+1) \times ((1+1) \times (11-1))^{(1+1)} - 1.
734 = (1+1) \times ((1+1+1) \times (11^{(1+1)} + 1) + 1).
                                                                                  800 = (1+1) \times ((1+1) \times (11-1))^{(1+1)}.
735 = (1+1+1) \times ((1+1) \times (11^{(1+1)} + 1) + 1).
                                                                                  801 = (1+1) \times ((1+1) \times (11-1))^{(1+1)} + 1.
736 = ((1+1) \times (11+1) + 1)^{(1+1)} + 111.
                                                                                  802 = (1+1) \times (((1+1) \times (11-1))^{(1+1)} + 1).
737 = 11 \times (11 \times (1+1) \times (1+1+1) + 1).
                                                                                  803 = 11 \times ((11 + 1)^{(1+1)}/(1+1) + 1).
738 = 11 \times (11 \times (1+1) \times (1+1+1) + 1) + 1.
                                                                                  804 = 11 \times ((11+1)^{(1+1)}/(1+1)+1)+1.
739 = (11 - 1 - 1)^{(1+1+1)} + 11 - 1.
                                                                                  805 = (1+1)^{11} - 11 \times (111+1+1).
740 = (11 - 1 - 1)^{(1+1+1)} + 11.
                                                                                  806 = (1+1)^{11} - 11 \times (111+1+1) + 1.
741 = (11 - 1 - 1)^{(1+1+1)} + 11 + 1.
                                                                                  807 = (11-1) \times (11-1-1)^{(1+1)} - 1 - 1 - 1.
742 = (11 - 1 - 1)^{(1+1+1)} + 11 + 1 + 1.
                                                                                  808 = (11-1) \times (11-1-1)^{(1+1)} - 1 - 1.
743 = (11 - 1 - 1)^{(1+1+1)} + 11 + 1 + 1 + 1.
                                                                                  809 = (11-1) \times (11-1-1)^{(1+1)} - 1.
744 = (11+1) \times ((11^{(1+1)}+1)/(1+1)+1).
                                                                                  810 = (11-1) \times (11-1-1)^{(1+1)}.
745 = ((1+1)^{(11+1+1)} + 1 + 1 + 1)/11.
                                                                                  811 = (11 - 1) \times (11 - 1 - 1)^{(1+1)} + 1.
746 = (1+1) \times ((11+11)^{(1+1)} - 111).
                                                                                  812 = (11 - 1) \times (11 - 1 - 1)^{(1+1)} + 1 + 1.
747 = (1+1) \times 11 \times (11 \times (1+1+1) + 1) - 1.
                                                                                  813 = (1+1) \times 11 \times 111/(1+1+1) - 1.
748 = (1+1) \times 11 \times (11 \times (1+1+1) + 1).
                                                                                  814 = (1+1) \times 11 \times 111/(1+1+1).
749 = (1+1) \times 11 \times (11 \times (1+1+1) + 1) + 1.
                                                                                  815 = (1+1) \times 11 \times 111/(1+1+1) + 1.
750 = (1+1) \times (11 \times (11 \times (1+1+1)+1)+1).
                                                                                  816 = (1+1)^{11} - 11 \times (111+1).
751 = (11 - 1 - 1)^{(1+1+1)} + 11 + 11.
                                                                                  817 = (1+1)^{11} - 11 \times (111+1) + 1.
752 = (11 - 1 - 1)^{(1+1+1)} + 11 + 11 + 1.
                                                                                  818 = (1+1)^{11} - 11 \times (111+1) + 1 + 1.
753 = (11 + 1)^{(1+1+1)}/(1+1) - 111.
                                                                                  819 = 11^{(1+1+1)} - (1+1)^{(11-1-1)}.
754 = (11 + 1)^{(1+1+1)}/(1+1) - 111 + 1.
                                                                                  820 = (11-1) \times ((11-1-1)^{(1+1)} + 1).
755 = 11^{(1+1+1)} - ((1+1) \times (11+1))^{(1+1)}.
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821 = (11-1) \times ((11-1-1)^{(1+1)} + 1) + 1.
                                                                                  886 = (1+1) \times ((1+1) \times (1+1) \times 111 - 1).
                                                                                  887 = (1+1)^{(1+1+1)} \times 111 - 1.
822 = (1+1) \times (((1+1) \times (11-1))^{(1+1)} + 11).
                                                                                  888 = (1+1)^{(1+1+1)} \times 111.
823 = 1111 - (1+1) \times (11+1)^{(1+1)}.
824 = 1111 - (1+1) \times (11+1)^{(1+1)} + 1.
                                                                                  889 = (1 + 1)^{(1+1+1)} \times 111 + 1.
                                                                                  890 = 11 \times (11 - 1 - 1)^{(1+1)} - 1.
825 = 11 \times ((1+1) \times 111/(1+1+1) + 1).
826 = (1+1)^{11} - 11 \times 111 - 1.
                                                                                  891 = 11 \times (11 - 1 - 1)^{(1+1)}.
827 = (1+1)^{11} - 11 \times 111.
                                                                                  892 = 11 \times (11 - 1 - 1)^{(1+1)} + 1.
                                                                                  893 = 11 \times (11 - 1 - 1)^{(1+1)} + 1 + 1.
828 = (1+1)^{11} - 11 \times 111 + 1.
                                                                                  894 = 11 \times (11 - 1 - 1)^{(1+1)} + 1 + 1 + 1.
829 = (1+1)^{11} - 11 \times 111 + 1 + 1.
830 = (11 - 1) \times ((11 - 1 - 1)^{(1+1)} + 1 + 1).
                                                                                  895 = (111 + 1) \times (1 + 1)^{(1+1+1)} - 1.
831 = (11-1) \times ((11-1-1)^{(1+1)} + 1 + 1) + 1.
                                                                                  896 = (111 + 1) \times (1 + 1)^{(1+1+1)}.
832 = (11 + 1 + 1) \times (1 + 1)^{((1+1)\times(1+1+1))}
                                                                                  897 = (111 + 1) \times (1 + 1)^{(1+1+1)} + 1.
833 = (11 + 1 + 1) \times (1 + 1)^{((1+1)\times(1+1+1))} + 1.
                                                                                  898 = ((1+1+1) \times (11-1))^{(1+1)} - 1 - 1.
                                                                                  899 = ((1+1+1) \times (11-1))^{(1+1)} - 1.
834 = (1+1) \times (11 \times (111/(1+1+1)+1) - 1).
835 = 1111 - (11 + 1) \times (11 + 11 + 1).
                                                                                  900 = ((1+1+1) \times (11-1))^{(1+1)}.
                                                                                  901 = ((1+1+1) \times (11-1))^{(1+1)} + 1.
836 = (1+1) \times 11 \times (111/(1+1+1)+1).
837 = (1+1)^{11} - 11 \times (111-1) - 1.
                                                                                  902 = 11 \times ((11 - 1 - 1)^{(1+1)} + 1).
                                                                                  903 = (1+1)^{(11-1)} - 11^{(1+1)}.
838 = (1+1)^{11} - 11 \times (111-1).
839 = (1+1)^{11} - 11 \times (111-1) + 1.
                                                                                  904 = (1+1)^{(11-1)} - 11^{(1+1)} + 1.
840 = (11 - 1 - 1)^{(1+1+1)} + 111.
                                                                                  905 = (1+1)^{(11-1)} - 11^{(1+1)} + 1 + 1.
841 = ((1+1+1) \times (11-1) - 1)^{(1+1)}.
                                                                                  906 = (1+1)^{(11-1)} - 11^{(1+1)} + 1 + 1 + 1.
                                                                                  907 = (111 + 1) \times (1 + 1)^{(1+1+1)} + 11.
842 = ((1+1+1) \times (11-1) - 1)^{(1+1)} + 1.
843 = ((1+1+1) \times (11-1) - 1)^{(1+1)} + 1 + 1.
                                                                                  908 = (11 - 1 - 1) \times ((11 - 1)^{(1+1)} + 1) - 1.
                                                                                  909 = (11 - 1 - 1) \times ((11 - 1)^{(1+1)} + 1).
844 = (1+1) \times (1+1) \times ((1+1) \times 111 - 11).
                                                                                  910 = (11 - 1 - 1) \times ((11 - 1)^{(1+1)} + 1) + 1.
845 = (1+1+1+1+1) \times (11+1+1)^{(1+1)}.
                                                                                  911 = ((1+1+1) \times (11-1))^{(1+1)} + 11.
846 = 11 \times 11 \times ((1+1) \times (1+1+1) + 1) - 1.
                                                                                  912 = (1 + 1)^{(11-1)} - 111 - 1.
847 = 11 \times 11 \times ((1+1) \times (1+1+1) + 1).
                                                                                  913 = (1+1)^{(11-1)} - 111.
848 = 11 \times 11 \times ((1+1) \times (1+1+1) + 1) + 1.
849 = ((1+1)^{11}) + (11 \times ((1-111)+1)).
                                                                                  914 = (1+1)^{(11-1)} - 111 + 1.
850 = 11^{(1+1)} + (11 - 1 - 1)^{(1+1+1)}.
                                                                                  915 = (1+1)^{(11-1)} - 111 + 1 + 1.
851 = (11 + 11 + 1) \times \frac{111}{(1 + 1 + 1)}.
                                                                                  916 = (1+1)^{(11-1)} - 111 + 1 + 1 + 1.
852 = ((1+1+1) \times (11-1) - 1)^{(1+1)} + 11.
                                                                                  917 = (1+1)^{(11-1)} - 111 + 1 + 1 + 1 + 1.
853 = (11+1)^{(1+1+1)}/(1+1) - 11.
                                                                                  918 = (11 - 1 - 1) \times ((11 - 1)^{(1+1)} + 1 + 1).
854 = (11+1)^{(1+1+1)}/(1+1) - 11 + 1.
                                                                                  919 = (11 - 1 - 1) \times ((11 - 1)^{(1+1)} + 1 + 1) + 1.
855 = 1111 - (1+1)^{((1+1)(1+1+1))}.
                                                                                  920 = (11 - 1) \times ((11 - 1 - 1)^{(1+1)} + 11).
                                                                                  921 = (11-1) \times ((11-1-1)^{(1+1)} + 11) + 1.
856 = (11-1)^{(1+1+1)'} - (11+1)^{(1+1)}.
                                                                                  922 = ((1+1+1) \times (11-1))^{(1+1)} + 11 + 11.
857 = (1+1) \times (11+11)^{(1+1)} - 111.
                                                                                 923 = (1 + 1)^{(11-1)} + 11 - 111 - 1.
858 = 11 \times (111 - 11 \times (1 + 1 + 1)).
                                                                                 924 = (1+1)^{(11-1)} + 11 - 111.
859 = 11 \times (111 - 11 \times (1 + 1 + 1)) + 1.
                                                                                 925 = (11111 - 11)/(11 + 1).
860 = (1+1) \times ((11+11-1)^{(1+1)}-11).
861 = (11+1)^{(1+1+1)}/(1+1) - 1 - 1 - 1.
                                                                                  926 = (11111 + 1)/(11 + 1).
862 = (11+1)^{(1+1+1)}/(1+1) - 1 - 1.
                                                                                  927 = (11111 + 1)/(11 + 1) + 1.
863 = (11+1)^{(1+1+1)}/(1+1) - 1.
                                                                                  928 = (11111 + 1)/(11 + 1) + 1 + 1.
864 = (11+1)^{(1+1+1)}/(1+1).
                                                                                  929 = (11111 + 1)/(11 + 1) + 1 + 1 + 1.
865 = (11+1)^{(1+1+1)}/(1+1)+1.
                                                                                  930 = (11 - 1) \times ((1 + 1)^{(11-1)} - 1)/11.
                                                                                  931 = ((11-1) \times (1+1)^{(11-1)} + 1)/11.
866 = (11+1)^{(1+1+1)}/(1+1)+1+1.
867 = (11+1)^{(1+1+1)}/(1+1) + 1 + 1 + 1.
                                                                                  932 = (1+1) \times (1+1) \times ((1+1) \times 111 + 11).
868 = 1111 - (1+1) \times 11^{(1+1)} - 1.
                                                                                  933 = (1+1) \times (1+1) \times ((1+1) \times 111 + 11) + 1.
                                                                                  934 = (1+1)^{11} - 1111 - 1 - 1 - 1.
869 = 11 \times ((11 - 1 - 1)^{(1+1)} - 1 - 1).
                                                                                  935 = (1+1)^{11} - 1111 - 1 - 1.
870 = 11 \times ((11 - 1 - 1)^{(1+1)} - 1 - 1) + 1.
                                                                                  936 = (1+1)^{11} - 1111 - 1.
871 = 1111 - (1+1) \times (11^{(1+1)} - 1).
                                                                                  937 = (1+1)^{11} - 1111.
872 = (111 - 1 - 1) \times (11 - 1 - 1 - 1).
                                                                                  938 = (1+1)^{11} - 1111 + 1.
873 = (111 - 1 - 1) \times (11 - 1 - 1 - 1) + 1.
                                                                                  939 = (1+1)^{11} - 1111 + 1 + 1.
874 = 11 + ((11+1)^{(1+1+1)}/(1+1) - 1).
875 = 11 + (11+1)^{(1+1+1)}/(1+1).
                                                                                  940 = (1+1)^{11} - 1111 + 1 + 1 + 1.
876 = 11 + (11 + 1)^{(1+1+1)}/(1+1) + 1.
                                                                                 941 = 1111 - (11 + 1 + 1)^{(1+1)} - 1.
                                                                                 942 = 1111 - (11 + 1 + 1)^{(1+1)}.
943 = 1111 - (11 + 1 + 1)^{(1+1)} + 1.
877 = (1+1)^{(1+1+1)} \times 111 - 11.
878 = (1+1)^{(1+1+1)} \times 111 - 11 + 1.
                                                                                  944 = (1+1) \times ((11+11)^{(1+1)} - 11 - 1).
879 = (11-1)^{(1+1+1)} - 11^{(1+1)}.
                                                                                 945 = (1+1) \times ((11+11)^{(1+1)} - 11) - 1.
880 = 11 \times ((11 - 1 - 1)^{(1+1)} - 1).

881 = 11 \times ((11 - 1 - 1)^{(1+1)} - 1) + 1.
                                                                                 946 = (1+1) \times ((11+11)^{(1+1)} - 11).
                                                                                  947 = (1+1) \times ((11+11)^{(1+1)} - 11) + 1.
882 = (1+1) \times (11+11-1)^{(1+1)}.
883 = (1+1) \times (11+11-1)^{(1+1)} + 1.
                                                                                  948 = (1+1)^{11} - 1111 + 11.
                                                                                  949 = (1+1)^{11} - 1111 + 11 + 1.
884 = (1+1) \times ((11+11-1)^{(1+1)}+1).
                                                                                  950 = ((1+1+1) \times (11-1) + 1)^{(1+1)} - 11.
885 = (1+1) \times ((11+11-1)^{(1+1)}+1) + 1.
                                                                                  951 = ((1+1+1) \times (11-1) + 1)^{(1+1)} - 11 + 1.
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952 = (1+1)^{(1+1+1)} \times (11^{(1+1)} - 1 - 1).
                                                                                 977 = (1+1)^{(1+1+1)} \times (11^{(1+1)} + 1) + 1.
953 = (1+1)^{(1+1+1)} \times (11^{(1+1)} - 1 - 1) + 1.
                                                                                 978 = 11 \times (111 - 11 - 11) - 1.
954 = (11 - 1 - 1) \times (111 - (11 - 1)/(1 + 1)).
                                                                                 979 = 11 \times (111 - 11 - 11).
955 = 1111 - (11 + 1) \times (11 + 1 + 1).
                                                                                 980 = 11 \times (111 - 11 - 11) + 1.
956 = 1111 - (11 + 1)^{(1+1)} - 11.
                                                                                 981 = (11 - 1 - 1) \times (111 - 1 - 1).
957 = 11 \times (111 - (1 + 1) \times (11 + 1)).
                                                                                 982 = (11 - 1 - 1) \times (111 - 1 - 1) + 1.
958 = 11 \times (111 - (1 + 1) \times (11 + 1)) + 1.
                                                                                 983 = (11 - 1 - 1) \times (111 - 1 - 1) + 1 + 1.
959 = (1+1)^{11} - (11 \times (1+1+1))^{(1+1)}.
                                                                                 984 = (11 + 1) \times ((11 - 1 - 1)^{(1+1)} + 1).
960 = (11+1) \times ((11-1-1)^{(1+1)}-1).
                                                                                 985 = (11+1) \times ((11-1-1)^{(1+1)} + 1) + 1.
                                                                                 986 = (11 - 1)^{(1+1+1)} - 11 - 1 - 1 - 1.
961 = ((1+1+1) \times (11-1) + 1)^{(1+1)}.
962 = ((1+1+1) \times (11-1) + 1)^{(1+1)} + 1.
                                                                                 987 = (11 - 1)^{(1+1+1)} - 11 - 1 - 1.
                                                                                 988 = (11 - 1)^{(1+1+1)} - 11 - 1.
963 = ((1+1+1) \times (11-1) + 1)^{(1+1)} + 1 + 1.
964 = (1+1) \times ((11+11)^{(1+1)} - 1 - 1).
                                                                                 989 = (11 - 1)^{(1+1+1)} - 11.
965 = (1+1) \times ((11+11)^{(1+1)} - 1) - 1.
                                                                                 990 = (11 - 1 - 1) \times (111 - 1).
966 = (1+1) \times ((11+11)^{(1+1)} - 1).
                                                                                 991 = (11 - 1 - 1) \times (111 - 1) + 1.
967 = 1111 - (11 + 1)^{(1+1)}.
                                                                                 992 = (11 - 1 - 1) \times (111 - 1) + 1 + 1.
968 = (1+1) \times (11+11)^{(1+1)}.
                                                                                 993 = (11 - 1 - 1) \times (111 - 1) + 1 + 1 + 1.
                                                                                 994 = (1+1)^{(11-1)} - (1+1+1) \times (11-1).
969 = (1+1) \times (11+11)^{(1+1)} + 1.
970 = (1+1) \times ((11+11)^{(1+1)} + 1).
                                                                                 995 = (11-1)^{(1+1+1)} - (11-1)/(1+1).
971 = (1+1) \times ((11+11)^{(1+1)} + 1) + 1.
                                                                                 996 = (1 + 1 + 1) \times ((1 + 1 + 1) \times 111 - 1).
972 = (11 + 1) \times (11 - 1 - 1)^{(1+1)}.
                                                                                 997 = (11-1)^{(1+1+1)} - 1 - 1 - 1.
                                                                                 998 = (11 - 1)^{(1+1+1)} - 1 - 1.
973 = (11+1) \times (11-1-1)^{(1+1)} + 1.
974 = (11 + 1) \times (11 - 1 - 1)^{(1+1)} + 1 + 1.
                                                                                 999 = 111 \times (11 - 1 - 1).
975 = (11 + 1)^{(1+1+1)}/(1+1) + 111.
                                                                                 1000 = (11 - 1)^{(1+1+1)}.
976 = (1+1)^{(1+1+1)} \times (11^{(1+1)} + 1).
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5. Representations Using Number 2

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101 = 2222/22.
                                                       138 = (2 + 2/2) \times (2 \times 22 + 2).
                                                                                                             175 = 2 \times 2 \times 2 \times 22 - 2/2.
                                                       139 = (2^{2 \times (2+2)} + 22)/2.
102 = 2 + (2 \times (2 + 2) + 2)^{2}.
                                                                                                              176 = 2 \times 2 \times 2 \times 22.
                                                                                                             177 = 2 \times 2 \times 2 \times 22 + 2/2.
103 = 2 + 2222/22.
                                                       140 = 2 \times (2 \times (22 + 2) + 22).
104 = 2 \times 2 \times (22 + 2 + 2).
                                                      141 = 22 - 2 + (22/2)^2.
                                                                                                             178 = 2 \times 2 \times 2 \times 22 + 2.
105 = 222/2 - 2 - 2 - 2.
                                                      142 = (2 \times (2 + 2 + 2))^2 - 2.
                                                                                                            179 = 2 \times 2 \times 2 \times 22 + 2 + 2/2.
106 = 2 + 2 \times 2 \times (22 + 2 + 2).
                                                     143 = 22 + (22/2)^2.
                                                                                                            180 = 2 \times (2 \times 2 \times 22 + 2).
107 = 222/2 - 2 - 2.
                                                     144 = (2 \times (2 + 2 + 2))^2.
                                                                                                            181 = 2 \times (2 \times 2 \times 22 + 2) + 2/2.
                                                     145 = (22/2)^2 + 22 + 2.
108 = (222 - 2)/2 - 2.
                                                                                                             182 = 2 \times (2 \times 2 \times 22 + 2) + 2.
                                                      146 = (2 \times (2 + 2 + 2))^2 + 2.
                                                                                                             183 = 2 \times 2 \times (2 \times 22 + 2) - 2/2.
109 = 222/2 - 2.
110 = (222 - 2)/2.
                                                      147 = (2 + 22/2)^2 - 22.
                                                                                                             184 = 2 \times 2 \times (2 \times 22 + 2).
111 = 222/2.
                                                      148 = (2 \times (2 + 2 + 2))^2 + 2 + 2.
                                                                                                             185 = 2 \times 2 \times (2 \times 22 + 2) + 2/2.
112 = (222 + 2)/2.
                                                      149 = (2 + 22/2)^2 - 22 + 2.
                                                                                                              186 = 2 \times 2 \times (2 \times 22 + 2) + 2.
                                                      150 = 2 \times 2^{(2+2+2)} + 22.
113 = 2 + 222/2.
                                                                                                              187 = 2 \times 2 \times 2 \times 22 + 22/2.
                                                      151 = (2^{2 \times (2+2)} + 2)/2 + 22.
114 = 2 + (222 + 2)/2.
                                                                                                              188 = 2 \times (2 \times (2 \times 22 + 2) + 2).
115 = 2 + 2 + 222/2.
                                                      152 = 2 \times 2 \times ((2+2+2)^2 + 2).
                                                                                                              189 = ((22 - 2)^2 - 22)/2.
116 = 2 + 2 + (222 + 2)/2.
                                                      153 = 2 \times 22 - 2 + 222/2.
                                                                                                              190 = 222 - 2 \times 2^{(2+2)}.
117 = (22/2)^2 - 2 - 2.
                                                      154 = 22 + 22 \times (2 + 2 + 2).
                                                                                                              191 = 22 + (2 + 22/2)^2.
118 = 2 \times 2 \times (22 + 2) + 22.
                                                      155 = 2 \times 22 + 222/2.
                                                                                                              192 = 2 \times 2 \times 2 \times (22 + 2).
119 = (22/2)^2 - 2.
                                                       156 = 2 \times (2 \times 2 \times (22 - 2) - 2).
                                                                                                              193 = (2 + 22/2)^2 + 22 + 2.
                                                                                                              194 = (2^{(2+2)} - 2)^2 - 2.
                                                       157 = 2 \times 22 + 2 + 222/2.
120 = (2 + 2 + 2) \times (22 - 2).
121 = (22/2)^2.
                                                       158 = 2 \times ((2+2/2)^{(2+2)} - 2).
                                                                                                              195 = (2^{(2+2)} - 2)^2 - 2/2.
122 = (22/2)^2 + 2/2.
                                                       159 = 2 \times (22 + 2) + 222/2.
                                                                                                              196 = (2^{(2+2)} - 2)^2.
123 = (22/2)^2 + 2.
                                                                                                              197 = (2^{(2+2)} - 2)^2 + 2/2.
                                                       160 = 2 \times 2 \times 2 \times (22 - 2).
124 = 2 \times (2^{(2+2+2)} - 2).
                                                       161 = ((2^{(2+2)} + 2)^2 - 2)/2.
                                                                                                              198 = (2^{(2+2)} - 2)^2 + 2.
125 = (22/2)^2 + 2 + 2.
                                                       162 = 2 \times (2 + 2/2)^{(2+2)}.
                                                                                                              199 = ((22 - 2)^2 - 2)/2.
126 = 2 \times 2^{(2+2+2)} - 2.
                                                       163 = ((2^{(2+2)} + 2)^2 + 2)/2.
                                                                                                              200 = 222 - 22.
127 = (2^{2 \times (2+2)} - 2)/2.
                                                      164 = 2 \times (2 + 2/2)^{(2+2)} + 2.
                                                                                                              201 = ((22 - 2)^2 + 2)/2.
128 = 2 \times 2^{(2+2+2)}.
                                                      165 = 2 \times 22 + (22/2)^2.
                                                                                                              202 = 222 - 22 + 2.
                                                      166 = 2 \times ((2 + 2/2)^{(2+2)} + 2).
129 = (2^{2 \times (2+2)} + 2)/2.
                                                                                                              203 = ((22 - 2)^2 + 2)/2 + 2.
130 = 2 \times 2^{(2+2+2)} + 2.
                                                     167 = (2 + 22/2)^2 - 2.
                                                                                                              204 = 222 - 22 + 2 + 2.
131 = 22 \times (2 + 2 + 2) - 2/2.
                                                     168 = 2 \times 2 \times (2 \times 22 - 2).
                                                                                                              205 = ((22-2)^2 + 2)/2 + 2 + 2.
                                                                                                              206 = 222 - 2^{(2+2)}.
132 = 22 \times (2 + 2 + 2).
                                                     169 = (2 + 22/2)^2.
                                                                                                              207 = 222 - 2^{(2+2)} + 2/2.
                                                     170 = 2 \times 2 \times (2 \times 22 - 2) + 2.
133 = 22 + 222/2.
134 = 22 \times (2 + 2 + 2) + 2.
                                                                                                              208 = 222 - 2^{(2+2)} + 2.
                                                     171 = (2 + 22/2)^2 + 2.
                                                                                                              209 = 222 - 2 - 22/2.
135 = 22 + 2 + 222/2.
                                                     172 = 2 \times (2 \times 2 \times 22 - 2).
136 = 22 \times (2 + 2 + 2) + 2 + 2.
                                                                                                              210 = 222 - 2 \times (2 + 2 + 2).
                                                    173 = (2 + 22/2)^2 + 2 + 2.
137 = 2^{(2+2)} + (22/2)^2.
                                                                                                              211 = 222 - 22/2.
                                                      174 = 2 \times 2 \times 2 \times 22 - 2.
```

```
212 = 222 - (22 - 2)/2.
                                                        278 = 22 + 2^{2 \times (2+2)}.
                                                                                                                 344 = 2 \times 2 \times (2 \times 2 \times 22 - 2).
                                                        279 = ((22 + 2)^2 - 22)/2 + 2.
213 = 222 + 2 - 22/2.
                                                                                                                  345 = (22/2)^2 + 222 + 2.
                                                        280 = 2^{2 \times (2+2)} + 22 + 2.
                                                                                                                  346 = (2^{(2+2)} + 2)^2 + 22.
214 = 222 - 2 \times (2 + 2).
                                                        281 = ((22 + 2)^2 - 22)/2 + 2 + 2.
215 = 222 + 2 + 2 - 22/2.
                                                                                                                 347 = (22/2)^2 + 222 + 2 + 2.
                                                        282 = 2^{2 \times (2+2)} + 22 + 2 + 2.
216 = (2+2+2)^{(2+2/2)}.
                                                                                                                 348 = 2 \times (2 \times 2 \times 2 \times 22 - 2).
                                                                                                                 349 = 22 \times 2^{(2+2)} - 2 - 2/2.
217 = 222 - 2 - 2 - 2/2.
                                                        283 = ((22 + 2)^2 - 2)/2 - 2 - 2.
                                                                                                                 350 = 22 \times 2^{(2+2)} - 2.
218 = 222 - 2 - 2.
                                                        284 = 22 \times (2 + 22/2) - 2.
                                                                                                                 351 = 22 \times 2^{(2+2)} - 2/2.
                                                        285 = ((22 + 2)^2 - 2)/2 - 2.
219 = 222 - 2 - 2/2.
                                                                                                                 352 = 22 \times 2^{(2+2)}.
                                                        286 = 22 \times (2 + 22/2).
220 = 222 - 2.
                                                        287 = ((22 + 2)^2 - 2)/2.
                                                                                                                 353 = 22 \times 2^{(2+2)} + 2/2.
221 = 222 - 2/2.
                                                        288 = (22 + 2)^2/2.
                                                                                                                 354 = 22 \times 2^{(2+2)} + 2.
222 = 222.
                                                        289 = (2^{(2+2)} + 2/2)^2.
                                                                                                                 355 = 22 \times 2^{(2+2)} + 2 + 2/2.
223 = 222 + 2/2.
                                                                                                                 356 = 22 \times 2^{(2+2)} + 2 + 2.
224 = 222 + 2.
                                                        290 = (22 + 2)^2/2 + 2.
                                                        291 = (2^{(2+2)} + 2/2)^2 + 2.
                                                                                                                 357 = (2 + 2/2) \times ((22/2)^2 - 2).
225 = 222 + 2 + 2/2.
                                                                                                                 358 = 22 \times 2^{(2+2)} + 2 + 2 + 2.
                                                        292 = (22 + 2)^2/2 + 2 + 2.
226 = 222 + 2 + 2.
                                                        293 = (2^{(2+2)} + 2/2)^2 + 2 + 2.
                                                                                                                 359 = (22 - 2 - 2/2)^2 - 2.
227 = 222 + 2 + 2 + 2/2.
                                                        294 = (22 + 2)^2/2 + 2 + 2 + 2.
228 = 222 + 2 + 2 + 2.
                                                                                                                 360 = 2 \times 2 \times (2 \times 2 \times 22 + 2).
                                                        295 = (2^{(2+2)} + 2/2)^2 + 2 + 2 + 2.
229 = (22^2 - 22)/2 - 2.
                                                                                                                 361 = (22 - 2 - 2/2)^2.
                                                                                                                 362 = 2 \times 2 \times (2 \times 2 \times 22 + 2) + 2.
230 = 222 + 2 \times (2 + 2).
                                                        296 = 2 \times ((2 \times (2+2+2))^2 + 2 + 2).
231 = (22^2 - 22)/2.
                                                        297 = ((22+2)^2 + 22)/2 - 2.
                                                                                                                 363 = (22 - 2 - 2/2)^2 + 2.
                                                        298 = 2 \times 22 + 2^{2 \times (2+2)} - 2.
                                                                                                                 364 = 2 \times (2 \times (2 \times 2 \times 22 + 2) + 2).
232 = 222 + 2 \times (2 + 2) + 2.
233 = 222 + 22/2.
                                                        299 = ((22 + 2)^2 + 22)/2.
                                                                                                                 365 = (22 - 2 - 2/2)^2 + 2 + 2.
234 = 2^{2 \times (2+2)} - 22.
                                                         300 = 2 \times 22 + 2^{2 \times (2+2)}.
                                                                                                                  366 = (2 \times (2 + 2 + 2))^2 + 222.
                                                                                                                 367 = 2^{2 \times (2+2)} + 222/2.
235 = 222 + 2 + 22/2.
                                                         301 = ((22 + 2)^2 + 22)/2 + 2.
236 = 2^{2 \times (2+2)} - 22 + 2.
                                                         302 = (2^{(2+2)} + 2)^2 - 22.
                                                                                                                 368 = 2 \times 2 \times 2 \times (2 \times 22 + 2).
                                                        303 = (2 + 2/2)^{(2+2)} + 222.
237 = (22^2 - 2)/2 - 2 - 2.
                                                                                                                 369 = (2 + 2/2) \times (2 + (22/2)^2).
                                                        304 = (2^{(2+2)} + 2)^2 - 22 + 2.
238 = 2 \times ((22/2)^2 - 2).
                                                                                                                 370 = 2 \times 2 \times 2 \times (2 \times 22 + 2) + 2.
239 = (22^2 - 2)/2 - 2.
                                                        305 = (2 + 2/2)^{(2+2)} + 222 + 2.
                                                                                                                 371 = 22^2 - 2 - 222/2.
240 = 22^2/2 - 2.
                                                        306 = 22 \times (2^{(2+2)} - 2) - 2.
                                                                                                                 372 = 2 \times (2 \times 2 \times (2 \times 22 + 2) + 2).
241 = (22^2 - 2)/2.
                                                        307 = (22 + 2/2)^2 - 222.
                                                                                                                 373 = 22^2 - 222/2.
242 = 22^2/2.
                                                        308 = 22 \times (2^{(2+2)} - 2).
                                                                                                                 374 = 22 \times 2^{(2+2)} + 22.
243 = (22^2 + 2)/2.
                                                        309 = ((22 + 2)^2 - 2)/2 + 22.
                                                                                                                 375 = 22^2 + 2 - 222/2.
                                                        310 = 22 \times (2^{(2+2)} - 2) + 2.
244 = 22^2/2 + 2.
                                                                                                                 376 = (22 - 2)^2 - 22 - 2.
245 = (22^2 + 2)/2 + 2.
                                                        311 = (2^{(2+2)} + 2/2)^2 + 22.
                                                                                                                 377 = (22/2)^2 + 2^{2 \times (2+2)}.
246 = 22^2/2 + 2 + 2.
                                                        312 = (22 + 2) \times (2 + 22/2).
                                                                                                                 378 = (22 - 2)^2 - 22.
                                                                                                                 379 = (22 - 2)^2 - 22 + 2/2.
                                                        313 = (2^{(2+2)} + 2)^2 - 22/2.
247 = (22^2 + 2)/2 + 2 + 2.
                                                                                                                 380 = (22 - 2)^2 - 22 + 2.
381 = (22 - 2)^2 - 22 + 2 + 2/2.
248 = 22^2/2 + 2 + 2 + 2.
                                                        314 = (22 + 2) \times (2 + 22/2) + 2.
249 = (22^2 + 2)/2 + 2 + 2 + 2.
                                                        315 = 22^2 - (2 + 22/2)^2
                                                        316 = 2 \times 2 \times ((2 + 2/2)^{(2+2)} - 2).
                                                                                                                 382 = 2^{(2+2)} \times (22+2) - 2.
250 = 2 \times ((22/2)^2 + 2 + 2).
                                                        317 = 22^2 - (2 + 22/2)^2 + 2.
251 = (22^2 + 22)/2 - 2.
                                                                                                                 383 = (22 - 2 - 2/2)^2 + 22.
252 = 2^{2 \times (2+2)} - 2 - 2.
                                                        318 = 2^{(2+2)} \times (22-2) - 2.
                                                                                                                 384 = 2^{(2+2)} \times (22+2).
                                                        319 = 2^{(2+2)} \times (22-2) - 2/2.
                                                                                                                 385 = 2^{(2+2)} \times (22+2) + 2/2.
253 = (22^2 + 22)/2.
                                                                                                                 386 = 2^{(2+2)} \times (22+2) + 2.
254 = 2^{2 \times (2+2)} - 2.
                                                        320 = (22 - 2) \times 2^{(2+2)}.
                                                        321 = (22 - 2) \times 2^{(2+2)} + 2/2.
255 = 2^{2 \times (2+2)} - 2/2.
                                                                                                                 387 = (22 - 2)^2 - 2 - 22/2.
256 = 2^{2 \times (2+2)}.
                                                                                                                 388 = 2 \times ((2^{(2+2)} - 2)^2 - 2).
                                                        322 = (2^{(2+2)} + 2)^2 - 2.
257 = 2^{2 \times (2+2)} + 2/2.
                                                        323 = (2^{(2+2)} + 2)^2 - 2/2.
                                                                                                                 389 = (22 - 2)^2 - 22/2.
                                                                                                                 390 = 2 \times (2^{(2+2)} - 2)^2 - 2.
258 = 2^{2 \times (2+2)} + 2.
                                                        324 = (2^{(2+2)} + 2)^2 - 2.
259 = 2^{2 \times (2+2)} + 2 + 2/2.
                                                        325 = (2^{(2+2)} + 2)^2 + 2/2.
                                                                                                                 391 = (22 - 2)^2 + 2 - 22/2.
260 = 2^{2 \times (2+2)} + 2 + 2.
                                                                                                                 392 = 2 \times (2^{(2+2)} - 2)^2.
                                                        326 = (2^{(2+2)} + 2)^2 + 2.
261 = 2^{2 \times (2+2)} + 2 + 2 + 2/2.
                                                                                                                 393 = 2 \times (2^{(2+2)} - 2)^2 + 2/2.
                                                        327 = (2^{(2+2)} + 2)^2 + 2 + 2/2.
                                                        328 = (2^{(2+2)} + 2)^2 + 2 + 2.
262 = 22^2 - 222.
                                                                                                                 394 = 2 \times (2^{(2+2)} - 2)^2 + 2.
                                                        329 = (2^{(2+2)} + 2)^2 + 2 + 2 + 2/2.
                                                                                                                 395 = (22 - 2)^2 - 2 - 2 - 2/2.
263 = 22 + (22^2 - 2)/2.
264 = 2 \times 22 \times (2 + 2 + 2).
                                                                                                                 396 = 22 \times (2^{(2+2)} + 2).
                                                        330 = 22 \times (2 + 2 + 22/2).
                                                        331 = 222 - 2 + 222/2.
265 = 22 + (22^2 + 2)/2.
                                                                                                                 397 = (22 - 2)^2 - 2 - 2/2.
266 = 222 + 2 \times 22.
                                                                                                                 398 = (22 - 2)^2 - 2.
                                                        332 = 22 \times (2 + 2 + 22/2) + 2.
267 = 2^{2 \times (2+2)} + 22/2.
                                                                                                                 399 = (22 - 2)^2 - 2/2.
                                                        333 = 222 + 222/2.
                                                                                                                 400 = (22 - 2)^2.
268 = 222 + 2 \times 22 + 2.
                                                        334 = 2 \times ((2 + 22/2)^2 - 2).
269 = 2 + 2^{2 \times (2+2)} + 22/2.
                                                                                                                 401 = (22 - 2)^2 + 2/2.
                                                        335 = 222 + 2 + 222/2.
                                                                                                                 402 = (22 - 2)^2 + 2.
270 = 222 + 2 \times (22 + 2).
                                                        336 = 2 \times 2 \times 2 \times (2 \times 22 - 2).
271 = 2^{2 \times (2+2)} + 2 + 2 + 22/2.
                                                                                                                 403 = (22 - 2)^2 + 2 + 2/2.
                                                        337 = ((22 + 2 + 2)^2 - 2)/2.
272 = 2^{2 \times (2+2)} + 2^{(2+2)}.
                                                                                                                 404 = (22 - 2)^2 + 2 + 2.
                                                        338 = 2 \times (2 + 22/2)^2.
                                                                                                                 405 = (22 - 2)^2 + 2 + 2 + 2/2.
                                                        339 = ((22 + 2 + 2)^2 + 2)/2.
273 = (2 + 22/2) \times (22 - 2/2).
                                                                                                                 406 = (22 - 2)^2 + 2 + 2 + 2.
274 = 2^{2 \times (2+2)} + 2^{(2+2)} + 2.
                                                        340 = 2 \times (2 + 22/2)^2 + 2.
                                                                                                                 407 = (22 - 2)^2 + 2 + 2 + 2 + 2/2.
275 = 22 + (22^2 + 22)/2.
                                                        341 = ((22 + 2 + 2)^2 + 2)/2 + 2.
276 = 22 + 2^{2 \times (2+2)} - 2.
                                                        342 = 2 \times ((2 + 22/2)^2 + 2).
                                                                                                                 408 = 2 \times (2+2) + (22-2)^2.
```

 $343 = (22/2)^2 + 222$.

 $409 = (22 - 2)^2 - 2 + 22/2.$

 $277 = ((22 + 2)^2 - 22)/2.$

| $410 = 2 \times (2+2) + (22-2)^2 + 2.$ | $476 = 22^2 - 2 \times (2+2).$ | $541 = 22 \times (22 + 2) + 2 + 22/2.$ |
|--|---|--|
| $411 = (22 - 2)^2 + 22/2.$ | $477 = 22^2 + 2 + 2 - 22/2.$ | $542 = (22 + 2/2)^2 + 2 + 22/2.$ |
| $412 = 2 \times (222 - 2^{(2+2)}).$ | $478 = 22^2 - 2 - 2 - 2.$ | $543 = (22 + 2/2)^2 + 2^{(2+2)} - 2.$ |
| $413 = (22 - 2)^2 + 2 + 22/2.$ | $479 = 22^2 - 2 - 2 - 2/2.$ | $513 = (22 + 2/2) + 2$ $544 = 2 \times (2^{2 \times (2+2)} + 2^{(2+2)}).$ |
| | $479 = 22 - 2 - 2 - 2/2.$ $480 = 22^2 - 2 - 2.$ | |
| $414 = 2 \times (222 - 2^{(2+2)}) + 2.$ | | $545 = (22 + 2/2)^2 + 2^{(2+2)}.$ |
| $415 = (22 - 2)^2 + 2 + 2 + 22/2.$ | $481 = 22^2 - 2 - 2/2.$ | $546 = (2^{(2+2)} + 2)^2 + 222.$ |
| $416 = 2^{(2+2)} + (22-2)^2.$ | $482 = 22^2 - 2.$ | $547 = (22 + 2/2)^2 + 2^{(2+2)} + 2.$ |
| $417 = (22 - 2/2)^2 - 22 - 2.$ | $483 = 22^2 - 2/2.$ | $548 = 22^2 + 2^{(2+2+2)}.$ |
| $418 = 22 \times (22 - 2 - 2/2).$ | $484 = 22^2$. | $549 = (22 + 2/2)^2 + 22 - 2.$ |
| $419 = (22 - 2/2)^2 - 22.$ | $485 = 22^2 + 2/2$. | $550 = 22 \times (22 + 2) + 22.$ |
| $420 = (22-2)^2 + 22 - 2.$ | $486 = 22^2 + 2$. | $551 = (22 + 2/2)^2 + 22.$ |
| $421 = (22 - 2/2)^2 - 22 + 2.$ | $487 = 22^2 + 2 + 2/2.$ | $552 = (22 + 2) \times (22 + 2/2).$ |
| $422 = (22 - 2)^2 + 22.$ | $488 = 22^2 + 2 + 2.$ | $553 = (22 + 2/2)^2 + 22 + 2.$ |
| $423 = (22 - 2)^2 + 22 + 2/2.$ | $489 = 22^2 + 2 + 2 + 2/2.$ | $554 = (22 + 2)^2 - 22.$ |
| $424 = (22 - 2)^2 + 22 + 272.$ $424 = (22 - 2)^2 + 22 + 2.$ | $490 = 22^2 + 2 + 2 + 2 + 2 = 2 = 2 = 2 = 2 = 2 = $ | 557 = (222 + 2) - 22. 555 = (2222 - 2)/(2 + 2). |
| | | |
| $425 = (22 - 2/2)^2 - 2^{(2+2)}.$ | $491 = 22^2 + 2 + 2 + 2 + 2/2.$ | 556 = (2222 + 2)/(2 + 2). |
| $426 = 2 \times (222 + 2) - 22$. | $492 = 22^2 + 2 \times (2+2).$ | 557 = (2222 - 2)/(2 + 2) + 2. |
| $427 = (22 - 2/2)^2 - 2^{(2+2)} + 2.$ | $493 = 22^2 - 2 + 22/2.$ | 558 = (2222 + 2)/(2 + 2) + 2. |
| $428 = 2 \times (222 - 2 \times (2 + 2)).$ | $494 = 22^2 + 2 \times (2+2) + 2.$ | 559 = (2222 - 2)/(2 + 2) + 2 + 2. |
| $429 = 2 \times (222 - 2) - 22/2.$ | $495 = 22^2 + 22/2.$ | $560 = (22+2)^2 - 2^{(2+2)}.$ |
| $430 = 2 \times (222 - 2 \times (2 + 2)) + 2.$ | $496 = 22^2 + 2 \times (2 + 2 + 2).$ | 561 = (2222 + 22)/(2 + 2). |
| $431 = 2 \times 222 - 2 - 22/2$. | $497 = 22^2 + 2 + 22/2$. | $562 = (22+2)^2 - 2^{(2+2)} + 2.$ |
| $432 = 2 \times (2 + 2 + 2)^{(2+2/2)}.$ | $498 = 22^2 + 2^{(2+2)} - 2.$ | $563 = (22 + 2)^2 - 22/2 - 2.$ |
| $433 = 2 \times 222 - 22/2$. | $499 = 22^2 + 2 + 2 + 22/2.$ | $564 = 22^2 + 2 \times 2 \times (22 - 2).$ |
| $434 = 2 \times (222 - 2 - 2) - 2.$ | $500 = 22^2 + 2^{(2+2)}.$ | $565 = (22 + 2)^2 - 22/2.$ |
| $435 = 2 \times (222 - 2 - 2) - 2$. $435 = 2 \times 222 + 2 - 22/2$. | $500 = 22^{2} + 2^{3} + 2^{2}$ $501 = 22^{2} + 2^{(2+2)} + 2/2.$ | $566 = (22 + 2)^{2} - (22 - 2)/2.$ |
| | | |
| $436 = 2 \times (222 - 2 - 2).$ | $502 = 22^2 + 2^{(2+2)} + 2.$ | $567 = (22 + 2)^2 + 2 - 22/2.$ |
| $437 = (22 - 2/2)^2 - 2 - 2.$ | $503 = 22^2 + 22 - 2 - 2/2.$ | $568 = (22+2)^2 - 2 \times (2+2).$ |
| $438 = 2 \times (222 - 2) - 2.$ | $504 = 22^2 + 22 - 2.$ | $569 = (22 + 2)^2 + 2 + 2 - 22/2.$ |
| $439 = (22 - 2/2)^2 - 2.$ | $505 = 22^2 + 22 - 2/2.$ | $570 = (22+2)^2 - 2 - 2 - 2.$ |
| $440 = 2 \times (222 - 2).$ | $506 = 22^2 + 22.$ | $571 = (22+2)^2 - 2 - 2 - 2/2.$ |
| $441 = (22 - 2/2)^2.$ | $507 = 22^2 + 22 + 2/2.$ | $572 = 22 \times (22 + 2 + 2).$ |
| $442 = 2 \times 222 - 2$. | $508 = 22^2 + 22 + 2.$ | $573 = (22+2)^2 - 2 - 2/2.$ |
| $443 = 2 \times 222 - 2/2$. | $509 = 22^2 + 22 + 2 + 2/2.$ | $574 = (22 + 2)^2 - 2.$ |
| $444 = 2 \times 222$. | $510 = 2^{((2+2/2)^2)} - 2.$ | $575 = (22 + 2)^2 - 2/2.$ |
| $445 = 2 \times 222 + 2/2.$ | $511 = 2^{((2+2/2)^2)} - 2/2.$ | $576 = (22 + 2)^2$. |
| $446 = 2 \times 222 + 2$. | $512 = 2^{((2+2/2)^2)}.$ | $577 = (22 + 2)^2 + 2/2.$ |
| $447 = 2 \times 222 + 2 + 2/2.$ | $513 = 2^{((2+2/2)^2)} + 2/2.$ | $578 = (22 + 2)^2 + 2.$ |
| $448 = 2 \times (222 + 2).$ | $514 = 2^{((2+2/2)^2)} + 2.$ | $570 = (22 + 2)^{2} + 2 + 2/2.$ |
| | $515 = 2^{((2+2/2)^2)} + 2 + 2/2.$ | $580 = (22 + 2)^{2} + 2 + 2 + 2.$ |
| $449 = 2 \times (222 + 2) + 2/2.$ | · · · · · · · · · · · · · · · · · · · | |
| $450 = 2 \times (222 + 2) + 2.$ | $516 = 2 \times (2^{2 \times (2+2)} + 2).$ | $581 = (22 + 2)^2 + 2 + 2 + 2/2.$ |
| $451 = 2 \times (222 + 2) + 2 + 2/2.$ | $517 = 22^2 + 22 + 22/2.$ | $582 = (22 + 2)^2 + 2 + 2 + 2.$ |
| $452 = 2 \times (222 + 2 + 2).$ | $518 = 2 \times (2^{2 \times (2+2)} + 2) + 2.$ | $583 = (22+2)^2 + 2 + 2 + 2 + 2/2.$ |
| $453 = 2 \times (222 + 2 + 2) + 2/2.$ | $519 = 2 \times (2^{2 \times (2+2)} + 2) + 2 + 2/2.$ | $584 = (22+2)^2 + 2 \times (2+2).$ |
| $454 = 2 \times (222 + 2 + 2) + 2.$ | $520 = 2 \times (2^{2 \times (2+2)} + 2 + 2).$ | $585 = (22 + 2)^2 - 2 + 22/2$. |
| $455 = 2 \times 222 + 22/2$. | | |
| | $521 = (22 - 2)^2 + (22/2)^2.$ | $586 = (22 + 2)^2 + 2 \times (2 + 2) + 2.$ |
| $456 = 2 \times (222 + 22/2)$. $456 = 2 \times (222 + 2 + 2 + 2)$. | $521 = (22 - 2)^{2} + (22/2)^{2}.$ $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ | |
| | $522 = +22^2 + (2+2+2)^2 + 2.$ | $586 = (22 + 2)^2 + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^2 + 22/2.$ |
| $456 = 2 \times (222 + 2 + 2 + 2).$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{((2+2/2)^{2})} + 22/2.$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ |
| $456 = 2 \times (222 + 2 + 2 + 2).$ $457 = 2 \times 222 + 2 + 22/2.$ $458 = 22^{2} - 22 - 2 - 2.$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{((2+2/2)^{2})} + 22/2.$ $524 = 2 \times (22^{2} - 222).$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ $589 = (22 + 2)^{2} + 2 + 22/2.$ |
| $456 = 2 \times (222 + 2 + 2 + 2).$ $457 = 2 \times 222 + 2 + 22/2.$ $458 = 22^{2} - 22 - 2 - 2.$ $459 = 2 \times (222 + 2) + 22/2.$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{((2+2/2)^{2})} + 22/2.$ $524 = 2 \times (22^{2} - 222).$ $525 = (22 + 2/2)^{2} - 2 - 2.$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ $589 = (22 + 2)^{2} + 2 + 22/2.$ $590 = (22 + 2)^{2} + 2^{(2+2)} - 2.$ |
| $456 = 2 \times (222 + 2 + 2 + 2).$ $457 = 2 \times 222 + 2 + 22/2.$ $458 = 22^{2} - 22 - 2 - 2.$ $459 = 2 \times (222 + 2) + 22/2.$ $460 = 22^{2} - 22 - 2.$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{((2+2/2)^{2})} + 22/2.$ $524 = 2 \times (22^{2} - 222).$ $525 = (22 + 2/2)^{2} - 2 - 2.$ $526 = 22 \times (22 + 2) - 2.$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ $589 = (22 + 2)^{2} + 2 + 22/2.$ $590 = (22 + 2)^{2} + 2^{(2+2)} - 2.$ $591 = (22 + 2)^{2} + 2 + 2 + 22/2.$ |
| $456 = 2 \times (222 + 2 + 2 + 2).$ $457 = 2 \times 222 + 2 + 22/2.$ $458 = 22^{2} - 22 - 2 - 2.$ $459 = 2 \times (222 + 2) + 22/2.$ $460 = 22^{2} - 22 - 2.$ $461 = 22^{2} - 22 - 2/2.$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{((2+2/2)^{2})} + 22/2.$ $524 = 2 \times (22^{2} - 222).$ $525 = (22 + 2/2)^{2} - 2 - 2.$ $526 = 22 \times (22 + 2) - 2.$ $527 = (22 + 2/2)^{2} - 2.$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ $589 = (22 + 2)^{2} + 2 + 22/2.$ $590 = (22 + 2)^{2} + 2^{(2+2)} - 2.$ $591 = (22 + 2)^{2} + 2 + 2 + 22/2.$ $592 = 2^{(2+2)} + (22 + 2)^{2}.$ |
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| $456 = 2 \times (222 + 2 + 2 + 2).$ $457 = 2 \times 222 + 2 + 22/2.$ $458 = 22^{2} - 22 - 2 - 2.$ $459 = 2 \times (222 + 2) + 22/2.$ $460 = 22^{2} - 22 - 2.$ $461 = 22^{2} - 22 - 2/2.$ $462 = 22^{2} - 22.$ $463 = (22 - 2/2)^{2} + 22.$ $464 = 22^{2} - 22 + 2.$ $465 = 22^{2} - 22 + 2 + 2/2.$ $466 = 2 \times 222 + 22.$ $467 = 2 \times 222 + 22.$ $468 = 22^{2} - 2^{(2+2)}.$ $469 = 22^{2} - 2^{(2+2)}.$ $469 = 22^{2} - 2^{(2+2)} + 2/2.$ $470 = 22^{2} - 2^{(2+2)} + 2/2.$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{(2+2/2)^{2}} + 22/2.$ $524 = 2 \times (22^{2} - 222).$ $525 = (22 + 2/2)^{2} - 2 - 2.$ $526 = 22 \times (22 + 2) - 2.$ $527 = (22 + 2/2)^{2} - 2.$ $528 = 22 \times (22 + 2).$ $529 = (22 + 2/2)^{2}.$ $530 = 22 \times (22 + 2) + 2.$ $531 = (22 + 2/2)^{2} + 2.$ $532 = 22 \times (22 + 2) + 2.$ $533 = (22 + 2/2)^{2} + 2.$ $534 = 2^{((2+2/2)^{2})} + 22.$ $535 = (22 + 2/2)^{2} + 2 + 2 + 2.$ $536 = 2^{((2+2/2)^{2})} + 22 + 2.$ $537 = 2 \times (2 + 2) + (22 + 2/2)^{2}.$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ $589 = (22 + 2)^{2} + 2 + 22/2.$ $590 = (22 + 2)^{2} + 2^{(2+2)} - 2.$ $591 = (22 + 2)^{2} + 2 + 2 + 22/2.$ $592 = 2^{(2+2)} + (22 + 2)^{2}.$ $593 = 22^{2} - 2 + 222/2.$ $594 = 2^{(2+2)} + (22 + 2)^{2} + 2.$ $595 = 22^{2} + 222/2.$ $596 = (22 + 2)^{2} + 22 - 2.$ $597 = 22^{2} + 2 + 222/2.$ $598 = (22 + 2)^{2} + 22 - 2.$ $599 = (22 + 2)^{2} + 22.$ $599 = (22 + 2)^{2} + 22 + 2/2.$ $600 = (22 + 2)^{2} + 22 + 2/2.$ $601 = (22 + 2)^{2} + 22 + 2 + 2/2.$ $602 = (22 + 2)^{2} + 22 + 2 + 2/2.$ |
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| $456 = 2 \times (222 + 2 + 2 + 2).$ $457 = 2 \times 222 + 2 + 22/2.$ $458 = 22^{2} - 22 - 2 - 2.$ $459 = 2 \times (222 + 2) + 22/2.$ $460 = 22^{2} - 22 - 2.$ $461 = 22^{2} - 22 - 2/2.$ $462 = 22^{2} - 22.$ $463 = (22 - 2/2)^{2} + 22.$ $464 = 22^{2} - 22 + 2.$ $465 = 22^{2} - 22 + 2.$ $466 = 2 \times 222 + 22.$ $467 = 2 \times 222 + 22.$ $468 = 22^{2} - 2(2^{2})^{2}.$ $469 = 22^{2} - 2(2^{2})^{2}.$ $469 = 22^{2} - 2(2^{2})^{2}.$ $470 = 22^{2} - 2(2^{2}) + 2/2.$ $471 = 22^{2} - 2 - 2(2^{2})$ $472 = 22^{2} - 2 \times (2 + 2 + 2).$ $473 = 22^{2} - 2 \times (2 + 2 + 2).$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{(2+2/2)^{2}} + 22/2.$ $524 = 2 \times (22^{2} - 222).$ $525 = (22 + 2/2)^{2} - 2 - 2.$ $526 = 22 \times (22 + 2) - 2.$ $527 = (22 + 2/2)^{2} - 2.$ $528 = 22 \times (22 + 2).$ $529 = (22 + 2/2)^{2}.$ $530 = 22 \times (22 + 2) + 2.$ $531 = (22 + 2/2)^{2} + 2.$ $532 = 22 \times (22 + 2) + 2.$ $533 = (22 + 2/2)^{2} + 2.$ $534 = 2^{((2+2/2)^{2})} + 22.$ $535 = (22 + 2/2)^{2} + 2 + 2.$ $536 = 2^{((2+2/2)^{2})} + 22 + 2.$ $537 = 2 \times (2 + 2) + (22 + 2/2)^{2}.$ $538 = 2 \times (2^{2 \times (2+2)} + 2) + 22.$ $539 = 22 \times (22 + 2) + 22/2.$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ $589 = (22 + 2)^{2} + 2 + 22/2.$ $590 = (22 + 2)^{2} + 2^{(2+2)} - 2.$ $591 = (22 + 2)^{2} + 2 + 2 + 22/2.$ $592 = 2^{(2+2)} + (22 + 2)^{2}.$ $593 = 22^{2} - 2 + 222/2.$ $594 = 2^{(2+2)} + (22 + 2)^{2} + 2.$ $595 = 22^{2} + 222/2.$ $596 = (22 + 2)^{2} + 22 - 2.$ $597 = 22^{2} + 2 + 222/2.$ $598 = (22 + 2)^{2} + 22 - 2.$ $599 = (22 + 2)^{2} + 22.$ $599 = (22 + 2)^{2} + 22 + 2/2.$ $600 = (22 + 2)^{2} + 22 + 2/2.$ $601 = (22 + 2)^{2} + 22 + 2 + 2/2.$ $602 = (22 + 2)^{2} + 22 + 2 + 2/2.$ $603 = 22^{2} + (22/2)^{2} - 2.$ $604 = 2 \times ((2^{(2+2)} + 2)^{2} - 22).$ |
| $456 = 2 \times (222 + 2 + 2 + 2).$ $457 = 2 \times 222 + 2 + 22/2.$ $458 = 22^{2} - 22 - 2 - 2.$ $459 = 2 \times (222 + 2) + 22/2.$ $460 = 22^{2} - 22 - 2.$ $461 = 22^{2} - 22 - 2/2.$ $462 = 22^{2} - 22.$ $463 = (22 - 2/2)^{2} + 22.$ $464 = 22^{2} - 22 + 2.$ $465 = 22^{2} - 22 + 2 + 2/2.$ $466 = 2 \times 222 + 22.$ $467 = 2 \times 222 + 22.$ $468 = 22^{2} - 2^{(2+2)}.$ $469 = 22^{2} - 2^{(2+2)}.$ $469 = 22^{2} - 2^{(2+2)} + 2/2.$ $470 = 22^{2} - 2^{(2+2)} + 2/2.$ $471 = 22^{2} - 2 - 22/2.$ $472 = 22^{2} - 2 \times (2 + 2 + 2).$ | $522 = +22^{2} + (2 + 2 + 2)^{2} + 2.$ $523 = 2^{(2+2/2)^{2}} + 22/2.$ $524 = 2 \times (22^{2} - 222).$ $525 = (22 + 2/2)^{2} - 2 - 2.$ $526 = 22 \times (22 + 2) - 2.$ $527 = (22 + 2/2)^{2} - 2.$ $528 = 22 \times (22 + 2).$ $529 = (22 + 2/2)^{2}.$ $530 = 22 \times (22 + 2) + 2.$ $531 = (22 + 2/2)^{2} + 2.$ $532 = 22 \times (22 + 2) + 2.$ $533 = (22 + 2/2)^{2} + 2.$ $534 = 2^{((2+2/2)^{2})} + 22.$ $535 = (22 + 2/2)^{2} + 2 + 2 + 2.$ $536 = 2^{((2+2/2)^{2})} + 22 + 2.$ $537 = 2 \times (2 + 2) + (22 + 2/2)^{2}.$ $538 = 2 \times (2^{2 \times (2+2)} + 2) + 22.$ | $586 = (22 + 2)^{2} + 2 \times (2 + 2) + 2.$ $587 = (22 + 2)^{2} + 22/2.$ $588 = (2 + 2/2) \times (2^{(2+2)} - 2)^{2}.$ $589 = (22 + 2)^{2} + 2 + 22/2.$ $590 = (22 + 2)^{2} + 2^{(2+2)} - 2.$ $591 = (22 + 2)^{2} + 2 + 2 + 22/2.$ $592 = 2^{(2+2)} + (22 + 2)^{2}.$ $593 = 22^{2} - 2 + 222/2.$ $594 = 2^{(2+2)} + (22 + 2)^{2} + 2.$ $595 = 22^{2} + 222/2.$ $596 = (22 + 2)^{2} + 22 - 2.$ $597 = 22^{2} + 2 + 22/2.$ $598 = (22 + 2)^{2} + 22.$ $599 = (22 + 2)^{2} + 22.$ $599 = (22 + 2)^{2} + 22 + 2/2.$ $600 = (22 + 2)^{2} + 22 + 2/2.$ $601 = (22 + 2)^{2} + 22 + 2 + 2/2.$ $602 = (22 + 2)^{2} + 22 + 2 + 2/2.$ $603 = 22^{2} + (22/2)^{2} - 2.$ |

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738 = 2^{(2+2)} \times (2 \times 22 + 2) + 2.
607 = 22^2 + (22/2)^2 + 2.
                                                         673 = (22 + 2 + 2)^2 - 2 - 2/2.
                                                                                                                  739 = 22^2 + 2^{2 \times (2+2)} - 2/2.
608 = 2^{(2+2)} \times ((2+2+2)^2 + 2).
                                                         674 = (22 + 2 + 2)^2 - 2.
                                                                                                                  740 = 22^2 + 2^{2 \times (2+2)}.
609 = 22^2 + (22/2)^2 + 2 + 2.
                                                         675 = (22 + 2 + 2)^2 - 2/2.
610 = (22 + 2)^2 + 2 \times 2^{(2+2)} + 2.
                                                                                                                  741 = 22^2 + 2^{2 \times (2+2)} + 2/2.
                                                         676 = (22 + 2 + 2)^2.
611 = 22^2 + (2^{2 \times (2+2)} - 2)/2.
                                                                                                                  742 = 22^2 + 2^{2 \times (2+2)} + 2.
                                                         677 = (22 + 2 + 2)^2 + 2/2.
612 = 2 \times (22 \times (2^{(2+2)} - 2) - 2).
                                                                                                                  743 = 22^2 + 2^{2 \times (2+2)} + 2 + 2/2.
                                                         678 = (22 + 2 + 2)^2 + 2.
613 = 22^2 + (2^{2 \times (2+2)} + 2)/2.
                                                         679 = (22 + 2 + 2)^2 + 2 + 2/2.
                                                                                                                  744 = 2 \times 22^2 - 222 - 2.
                                                                                                                  745 = 2^{(2+2)} + (2+2/2)^{(2+2+2)}.
614 = 2 \times 22 \times (2^{(2+2)} - 2) - 2.
                                                         680 = (22 + 2 + 2)^2 + 2 + 2.
615 = (2/2 + 2 + 2) \times ((22/2)^2 + 2).
                                                         681 = (22 + 2 + 2)^2 + 2 + 2 + 2/2.
                                                                                                                  746 = 2 \times 22^2 - 222.
616 = 2 \times 22 \times (2^{(2+2)} - 2).
                                                                                                                   747 = 2 \times 22^2 - 222 + 2/2.
                                                         682 = (22 + 2 + 2)^2 + 2 + 2 + 2.
                                                         683 = 22^2 + ((22 - 2)^2 - 2)/2.
617 = 22^2 + 22 + 222/2.
                                                                                                                   748 = 22 \times (2 \times 2^{(2+2)} + 2).
618 = 2 \times 22 \times (2^{(2+2)} - 2) + 2.
                                                         684 = 2 \times 2 \times ((2 + 22/2)^2 + 2).
                                                                                                                  749 = 22 + (2 + 2/2)^{(2+2+2)} - 2.
                                                                                                                  750 = 2 + 22 \times (2 \times 2^{(2+2)} + 2).
619 = 2 \times 22 + (22 + 2)^2 - 2/2.
                                                         685 = (22 + 2 + 2)^2 - 2 + 22/2.
                                                                                                                  751 = (2 + 2/2)^{(2+2+2)} + 22.
620 = 2 \times 22 + (22 + 2)^2.
                                                         686 = 2 \times ((22/2)^2 + 222).
621 = (2 + 2 + 2/2)^{(2+2)} - 2 - 2.
                                                                                                                  752 = 2 \times ((22 - 2)^2 - 22 - 2).
                                                         687 = (22 + 2 + 2)^2 + 22/2.
                                                                                                                  753 = (2 + 2/2)^{(2+2+2)} + 22 + 2.
622 = (22 - 2)^2 + 222.
                                                         688 = 2 \times 2 \times 2 \times (2 \times 2 \times 22 - 2).
623 = (2 + 2 + 2/2)^{(2+2)} - 2.
                                                         689 = (22 + 2 + 2)^2 + 2 + 22/2.
                                                                                                                  754 = 2 \times ((22 - 2)^2 - 22) - 2.
                                                         690 = ((2 + 2/2) \times 222 + 22) + 2.
                                                                                                                  755 = 2 \times ((22 - 2)^2 - 22) - 2/2.
624 = (22 + 2) \times (22 + 2 + 2).
625 = (2 + 2 + 2/2)^{(2+2)}.
                                                         691 = (22 + 2 + 2)^2 + 2 + 2 + 22/2.
                                                                                                                  756 = 2 \times ((22 - 2)^2 - 22).
                                                         692 = 2 \times ((2^{(2+2)} + 2)^2 + 22).
                                                                                                                  757 = 2 \times ((22 - 2)^2 - 22) + 2/2.
626 = (22 + 2) \times (22 + 2 + 2) + 2.
627 = (2 + 2 + 2/2)^{(2+2)} + 2.
                                                                                                                  758 = 2 \times ((22 - 2)^2 - 22) + 2.
                                                         693 = (2 + 2/2) \times (22^2 - 22)/2.
628 = 22^2 + (2 \times (2 + 2 + 2))^2.
                                                         694 = (22 + 2 + 2)^2 + 2^{(2+2)} + 2.
                                                                                                                   759 = (2 + 2/2) \times (22^2 + 22)/2.
629 = (2 + 2 + 2/2)^{(2+2)} + 2 + 2.
                                                         695 = 22^2 + 222 - 22/2.
                                                                                                                   760 = 2 \times ((22 - 2)^2 - 22 + 2).
630 = 22^2 + (2 \times (2 + 2 + 2))^2 + 2.
                                                         696 = 2 \times 2 \times (2 \times 2 \times 2 \times 22 - 2).
                                                                                                                   761 = (2 + 2/2) \times (22^2 + 22)/2 + 2.
631 = (2 + 2 + 2/2)^{(2+2)} + 2 + 2 + 2
                                                                                                                   762 = (2 + 2/2) \times (2^{2 \times (2+2)} - 2).
                                                         697 = (22 + 2)^2 + (22/2)^2.
                                                                                                                   763 = (2+2/2) \times (2^{2\times(2+2)}-2) + 2/2.
632 = (22 + 2 + 2)^2 - 2 \times 22.
                                                         698 = (22 + 2 + 2)^2 + 22.
633 = 2 \times (2+2) + (2+2+2/2)^{(2+2)}.
                                                                                                                  764 = 2 \times (2^{(2+2)} \times (22+2) - 2).
                                                         699 = (22+2)^2 + 2 + (22/2)^2.
                                                         700 = 2 \times (22 \times 2^{(2+2)} - 2).
                                                                                                                  765 = (2 + 2/2) \times (2^{2 \times (2+2)} - 2/2).
634 = (22 + 2 + 2)^2 - 2 \times 22 + 2.
635 = ((2+2+2)^{(2+2)} - 22)/2 - 2.
                                                         701 = 2 \times (22 \times 2^{(2+2)} - 2) + 2/2.
                                                                                                                  766 = 2 \times 2^{(2+2)} \times (22+2) - 2.
                                                         702 = 2 \times 22 \times 2^{(2+2)} - 2.
636 = 2 \times (2^{(2+2)} \times (22-2) - 2).
                                                                                                                   767 = 2 \times 2 \times 222 - (22/2)^2.
637 = ((2+2+2)^{(2+2)} - 22)/2.
                                                         703 = 2 \times 22 \times 2^{(2+2)} - 2/2.
                                                                                                                   768 = 2 \times 2^{(2+2)} \times (22+2).
638 = 2 \times 2^{(2+2)} \times (22-2) - 2.
                                                                                                                   769 = 2 \times 2^{(2+2)} \times (22+2) + 2/2.
                                                         704 = 2 \times 22 \times 2^{(2+2)}.
639 = ((2+2+2)^{(2+2)} - 22)/2 + 2.
                                                                                                                   770 = 2 \times 2^{(2+2)} \times (22+2) + 2.
                                                         705 = 2 \times 22 \times 2^{(2+2)} + 2/2.
                                                                                                                  771 = 22^2 + ((22+2)^2 - 2)/2.
640 = 2 \times 2^{(2+2)} \times (22-2).
                                                         706 = 22^2 + 222.
                                                         707 = 22^2 + 222 + 2/2.
641 = 2 \times 2^{(2+2)} \times (22-2) + 2/2.
                                                                                                                  772 = 2 \times 2^{(2+2)} \times (22+2) + 2 + 2.
                                                                                                                  773 = 2 \times 22 + (2 + 2/2)^{(2+2+2)}.
                                                         708 = 22^2 + 222 + 2.
642 = 2 \times 2^{(2+2)} \times (22-2) + 2.
                                                                                                                  774 = (2 + 2/2) \times (2^{2 \times (2+2)} + 2).
                                                         709 = 22^2 + 222 + 2 + 2/2.
643 = (22 - 2)^2 + (22^2 + 2)/2.
644 = 2 \times ((2^{(2+2)} + 2)^2 - 2).
                                                         710 = 22^2 + 222 + 2 + 2.
                                                                                                                  775 = 22^2 + (2^{(2+2)} + 2/2)^2 + 2.
645 = ((2+2+2)^{(2+2)} - 2)/2 - 2.
                                                                                                                  776 = 2 \times 2 \times ((2^{(2+2)} - 2)^2 - 2).
                                                         711 = 2222/2 - (22 - 2)^2.
646 = 2 \times (2^{(2+2)} + 2)^2 - 2.
                                                         712 = 2 \times (22 \times 2^{(2+2)} + 2 + 2).
                                                                                                                  777 = 222 \times (2 + 2 + 2 + 2/2)/2.
                                                         713 = (2 + 2/2)^{(2+2+2)} - 2^{(2+2)}.
647 = ((2+2+2)^{(2+2)} - 2)/2.
                                                                                                                  778 = 2 \times (22 - 2)^2 - 22.
648 = 2 \times (2^{(2+2)} + 2)^2.
                                                                                                                  779 = 2 \times (22 - 2)^2 - 22 + 2/2.
                                                         714 = (2 + 2 + 2) \times ((22/2)^2 - 2).
649 = ((2+2+2)^{(2+2)} + 2)/2.
                                                         715 = 2 \times 22 \times 2^{(2+2)} + 22/2.
                                                                                                                  780 = 2 \times (22 - 2)^2 - 22 + 2.
650 = 2 \times (2^{(2+2)} + 2)^2 + 2.
                                                         716 = (2+2+2) \times ((22/2)^2 - 2) + 2.
                                                                                                                  781 = (22 + 2 + 2 + 2)^2 - 2 - 2/2.
651 = ((2 + 2 + 2)^{(2+2)} + 2)/2 + 2.
                                                         717 = 22^2 + 222 + 22/2.
                                                                                                                  782 = (22 + 2 + 2 + 2)^2 - 2.
652 = 2 \times ((2^{(2+2)} + 2)^2 + 2).
                                                         718 = 2 \times ((22 - 2 - 2/2)^2 - 2).
                                                                                                                  783 = (22 + 2 + 2 + 2)^2 - 2/2.
653 = 22^2 + (2 + 22/2)^2.
                                                         719 = (22 - 2) \times (2 + 2 + 2)^2 - 2/2.
                                                                                                                   784 = (22 + 2 + 2 + 2)^2.
654 = (22 + 2 + 2)^2 - 22.
                                                         720 = (22 - 2) \times (2 + 2 + 2)^2.
                                                                                                                   785 = (22 + 2 + 2 + 2)^2 + 2/2.
655 = 22^2 + (2 + 22/2)^2 + 2.
                                                         721 = (((2 + 2 + 2)^2 + 2)^2 - 2)/2.
                                                                                                                   786 = (22 + 2 + 2 + 2)^2 + 2.
656 = (22 + 2 + 2)^2 - 22 + 2.
                                                                                                                  787 = (22 + 2 + 2 + 2)^2 + 2 + 2/2.
                                                         722 = 2 \times (22 - 2 - 2/2)^2.
                                                         723 = (2 + 2/2) \times (22^2 - 2)/2.
657 = (2 + 2/2) \times (222 - 2 - 2/2).
                                                                                                                   788 = (22 + 2 + 2 + 2)^2 + 2 + 2.
658 = 22 \times (2 \times (2 + 2) + 22) - 2.
                                                         724 = 2 \times (22 - 2/2 - 2)^2 + 2.
                                                                                                                   789 = 2 \times (22 - 2)^2 - 22/2.
659 = ((2+2+2)^{(2+2)} + 22)/2.
                                                         725 = 22^2 + (22^2 - 2)/2.
                                                                                                                   790 = 22 \times (2 + 2 + 2)^2 - 2.
                                                         726 = 22 \times (22 + 22/2).
660 = 22 \times (2 \times (2 + 2) + 22).
                                                                                                                   791 = 22 \times (2 + 2 + 2)^2 - 2/2.
                                                         727 = (2 + 2/2)^{(2+2+2)} - 2.
661 = ((2+2+2)^{(2+2)} + 22)/2 + 2.
                                                                                                                  792 = 22 \times (2 + 2 + 2)^2.
                                                         728 = 22^2/2 + 22^2 + 2.
662 = 2 + 22 \times (2 \times (2 + 2) + 22).
                                                                                                                  793 = 22 \times (2 + 2 + 2)^2 + 2/2.
                                                         729 = (2 + 2/2)^{(2+2+2)}.
663 = (22 - 2/2)^2 + 222.
                                                                                                                  794 = 22 \times (2 + 2 + 2)^2 + 2.
                                                         730 = (2 + 2/2)^{(2+2+2)} + 2/2.
                                                                                                                  795 = 2 \times ((22 - 2)^2 - 2) - 2/2.
664 = (2 + 2/2) \times 222 - 2.
                                                         731 = (2 + 2/2)^{(2+2+2)} + 2.
                                                                                                                  796 = 2 \times ((22 - 2)^2 - 2).
665 = (22 + 2 + 2)^2 - 22/2.
                                                                                                                  797 = 2 \times ((22 - 2)^2 - 2) + 2/2.
666 = (2 + 2/2) \times 222.
                                                         732 = (2 + 2/2) \times (2 + 22^2/2).
                                                         733 = (2 + 2/2)^{(2+2+2)} + 2 + 2.
                                                                                                                  798 = 2 \times (22 - 2)^2 - 2.
667 = (2 + 2/2) \times 222 + 2/2.
                                                         734 = 2^{((2+2/2)^2)} + 222.
                                                                                                                  799 = 2 \times (22 - 2)^2 - 2/2.
668 = (2 + 2/2) \times 222 + 2.
669 = (2 + 2/2) \times (222 + 2/2).
                                                         735 = 2^{(2+2)} \times (2 \times 22 + 2) - 2/2.
                                                                                                                  800 = 2 \times (22 - 2)^2.
                                                         736 = 2^{(2+2)} \times (2 \times 22 + 2).
670 = (2 + 2/2) \times 222 + 2 + 2.
                                                                                                                  801 = 2 \times (22 - 2)^2 + 2/2.
                                                         737 = 2^{(2+2)} \times (2 \times 22 + 2) + 2/2.
                                                                                                                  802 = 2 \times (22 - 2)^2 + 2.
671 = (2 + 2/2) \times (222 + 2/2) + 2.
672 = (2 + 2/2) \times (222 + 2).
                                                                                                                  803 = 2 \times (22 - 2)^2 + 2 + 2/2.
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804 = 2 \times ((22 - 2)^2 + 2).
                                                         870 = 2 \times (2 \times 222 + 2) - 22.
                                                                                                                    936 = 2 \times (22^2 - 2^{(2+2)}).
                                                                                                                    937 = 2 \times (22^2 - 2^{(2+2)}) + 2/2.
805 = 2 \times ((22 - 2)^2 + 2) + 2/2.
                                                         871 = ((2 \times 22 - 2)^2 - 22)/2.
                                                                                                                    938 = 2 \times (22^2 - 2^{(2+2)}) + 2.
806 = 2 \times ((22-2)^2 + 2) + 2.
                                                         872 = 2 \times 2 \times (222 - 2 - 2).
                                                         873 = ((2 \times 22 - 2)^2 - 22)/2 + 2.
                                                                                                                    939 = ((2 + 2/2)^2 + 22)^2 - 22.
807 = 2 \times ((22-2)^2 + 2) + 2 + 2/2.
                                                                                                                   940 = 2 \times (22^2 - 2^{(2+2)} + 2).
808 = 2 \times ((22-2)^2 + 2 + 2).
                                                         874 = 2 \times 2 \times (222 - 2 - 2) + 2.
                                                                                                                   941 = 2 \times (22^2 - 2) - 22 - 2/2.
809 = 2 \times ((22 - 2)^2 + 2 + 2) + 2/2.
                                                         875 = 2 \times 2 \times 222 - 2 - 22/2.
                                                                                                                   942 = 2 \times (22^2 - 2) - 22.
810 = 2 \times ((22-2)^2 + 2 + 2) + 2.
                                                         876 = 2 \times (2 \times (222 - 2) - 2).
                                                                                                                   943 = 2 \times (22^2 - 2) - 22 + 2/2.
811 = 2 \times (22 - 2)^2 + 22/2.
                                                         877 = 2 \times 2 \times 222 - 22/2.
812 = 2 \times ((22 - 2)^2 + 2 + 2 + 2).
                                                         878 = 2 \times 2 \times (222 - 2) - 2.
                                                                                                                   944 = 2 \times 22^2 - 22 - 2.
                                                                                                                   945 = 2 \times 22^2 - 22 - 2/2.
813 = 2 \times (22 - 2)^2 + 22/2 + 2.
                                                         879 = 2 \times 2 \times (222 - 2) - 2/2.
                                                                                                                   946 = 2 \times 22^2 - 22.
814 = 22 \times (2 + 2 + 2)^2 + 22.
                                                         880 = 2 \times 2 \times (222 - 2).
                                                                                                                   947 = 2 \times 22^2 - 22 + 2/2.
815 = 2 \times ((22 - 2)^2 + 2) + 22/2.
                                                         881 = ((2 \times 22 - 2)^2 - 2)/2.
                                                                                                                   948 = 2 \times 22^2 - 22 + 2.
816 = 2 \times ((22-2)^2 + 2 \times (2+2)).
                                                         882 = 2 \times (22 - 2/2)^2.
                                                         883 = ((2 \times 22 - 2)^2 + 2)/2.
                                                                                                                   949 = 2 \times 22^2 - 22 + 2 + 2/2.
817 = (22 + 2)^2 + (22^2 - 2)/2.
818 = 2 \times ((22-2)^2 - 2) + 22.
                                                                                                                   950 = 2 \times (22^2 + 2) - 22.
                                                         884 = 2 \times (2 \times 222 - 2).
819 = (22 + 2)^2 + (22^2 + 2)/2.
                                                                                                                   951 = 2 \times (22^2 + 2) - 22 + 2/2.
                                                         885 = 2 \times 2 \times 222 - 2 - 2/2.
820 = 2 \times (22 - 2)^2 + 22 - 2.
                                                                                                                   952 = 2 \times (22^2 - 2 \times (2 + 2)).
                                                         886 = 2 \times 2 \times 222 - 2.
821 = 2 \times (22 - 2)^2 + 22 - 2/2.
                                                                                                                   953 = 2 \times (22^2 - 2) - 22/2.
                                                         887 = 2 \times 2 \times 222 - 2/2.
                                                                                                                   954 = 2 \times (22^2 - 2 \times (2 + 2)) + 2.
822 = 2 \times (22 - 2)^2 + 22.
                                                         888 = 2 \times 2 \times 222.
823 = 2 \times (22 - 2)^2 + 22 + 2/2.
                                                                                                                   955 = 2 \times 22^2 - 2 - 22/2.
                                                         889 = 2 \times 2 \times 222 + 2/2.
824 = 2 \times (22 - 2)^2 + 22 + 2.
                                                                                                                   956 = 2 \times (22^2 - 2 - 2 - 2).
                                                         890 = 2 \times 2 \times 222 + 2.
825 = (2 \times 22)^2 - 2222/2.
                                                         891 = 2 \times 2 \times 222 + 2 + 2/2.
                                                                                                                   957 = 2 \times 22^2 - 22/2.
                                                                                                                   958 = 2 \times (22^2 - 2 - 2 - 2) + 2.
826 = 2 \times ((22-2)^2 + 2) + 22.
                                                         892 = 2 \times (2 \times 222 + 2).
827 = (2 \times 22)^2 + 2 - 2222/2.
                                                         893 = 2 \times (2 \times 222 + 2) + 2/2.
                                                                                                                   959 = 2 \times 22^2 + 2 - 22/2.
828 = (2^{(2+2)} + 2) \times (2 \times 22 + 2).
                                                                                                                   960 = 2 \times (22^2 - 2 - 2).
                                                         894 = 2 \times (2 \times 222 + 2) + 2.
829 = (2 \times 22 + 2) \times (2^{(2+2)} + 2) + 2/2.
                                                                                                                   961 = (22 + (2 + 2/2)^2)^2.
                                                         895 = 2 \times 2 \times (222 + 2) - 2/2.
830 = (2^{(2+2)} + 2) \times (2 \times 22 + 2) + 2.
                                                                                                                   962 = 2 \times (22^2 - 2) - 2.
                                                         896 = 2 \times 2 \times (222 + 2).
831 = (2 + 2/2) \times ((22 + 2)^2 - 22)/2.
                                                                                                                   963 = 2 \times (22^2 - 2) - 2/2.
                                                         897 = 2 \times 2 \times (222 + 2) + 2/2.
832 = 2 \times ((22 - 2)^2 + 2^{(2+2)}).
                                                         898 = 2 \times 2 \times (222 + 2) + 2.
                                                                                                                   964 = 2 \times (22^2 - 2).
833 = 2 \times (22 - 2)^2 + 22 + 22/2.
                                                                                                                   965 = 2 \times 22^2 - 2 - 2/2.
                                                         899 = 2 \times 2 \times 222 + 22/2.
834 = 22 \times ((2 + 2 + 2)^2 + 2) - 2.
                                                         900 = (2 \times (2+2) + 22)^2.
                                                                                                                   966 = 2 \times 22^2 - 2.
835 = 22 \times ((2+2+2)^2 + 2) - 2/2.
                                                         901 = (2 \times (2+2) + 22)^2 + 2/2.
                                                                                                                   967 = 2 \times 22^2 - 2/2.
836 = 22 \times ((2+2+2)^2 + 2).
                                                         902 = (2 \times (2 + 2) + 22)^2 + 2.
                                                                                                                   968 = 2 \times 22^2.
837 = 22 \times ((2+2+2)^2+2)+2-2/2.
                                                         903 = (2 \times (2+2) + 22)^2 + 2 + 2/2.
                                                                                                                   969 = 2 \times 22^2 + 2/2.
                                                                                                                   970 = 2 \times 22^2 + 2.
838 = 22 \times ((2 + 2 + 2)^2 + 2) + 2.
                                                         904 = 2 \times 2 \times (222 + 2 + 2).
                                                         905 = ((2 \times 22 - 2)^2 + 2)/2 + 22.
                                                                                                                   971 = 2 \times 22^2 + 2 + 2/2.
839 = (22 - 2) \times (2 \times 22 - 2) - 2/2.
                                                                                                                   972 = 2 \times (22^2 + 2).
840 = (22 - 2) \times (2 \times 22 - 2).
                                                         906 = 2 \times 2 \times (222 + 2 + 2) + 2.
                                                                                                                   973 = 2 \times (22^2 + 2) + 2/2.
841 = (22 + 2 + 2 + 2 + 2/2)^{2}.
                                                         907 = 2 \times 2 \times (222 + 2) + 22/2.
                                                         908 = 2 \times (2 \times (222 + 2 + 2) + 2).
                                                                                                                   974 = 2 \times (22^2 + 2) + 2.
842 = (22 - 2) \times (2 \times 22 - 2) + 2.
843 = (22 + 2 + 2 + 2 + 2/2)^2 + 2.
                                                         909 = 2 \times 2 \times 222 + 22 - 2/2.
                                                                                                                   975 = 2 \times (22^2 + 2) + 2 + 2/2.
844 = 2 \times ((22 - 2)^2 + 22).
                                                         910 = 2 \times 2 \times 222 + 22.
                                                                                                                   976 = 2 \times (22^2 + 2 + 2).
845 = 2 \times ((22 - 2)^2 + 22) + 2/2.
                                                         911 = 2 \times 2 \times 222 + 22 + 2/2.
                                                                                                                   977 = 2 \times (22^2 + 2 + 2) + 2/2.
846 = 2 \times ((22 - 2)^2 + 22) + 2.
                                                         912 = 2 \times 2 \times 222 + 22 + 2.
                                                                                                                   978 = 2 \times (22^2 + 2 + 2) + 2.
847 = 2 \times 22^2 - (22/2)^2.
                                                         913 = (2^{(22/2)} - 222)/2.
                                                                                                                   979 = 2 \times 22^2 + 22/2.
848 = 2 \times ((22-2)^2 + 22 + 2).
                                                         914 = 2 \times (2 \times 222 + 2) + 22.
                                                                                                                   980 = 2 \times (22^2 + 2 + 2 + 2).
849 = 2 + 2 \times 22^2 - (22/2)^2.
                                                         915 = (2^{(22/2)} - 222)/2 + 2.
                                                                                                                   981 = 2 \times 22^2 + 2 + 22/2.
850 = 2 \times ((22-2)^2 + 22 + 2) + 2.
                                                         916 = 2 \times (22^2 - 22 - 2 - 2).
                                                                                                                   982 = 2 \times (22^2 + 2 + 2 + 2) + 2.
851 = 2 \times (22^2 + 2) - (22/2)^2.
                                                         917 = (2^{(22/2)} - 222)/2 + 2 + 2.
                                                                                                                   983 = 2 \times (22^2 + 2) + 22/2.
852 = 2 \times (2 \times (222 + 2) - 22).
                                                         918 = 2 \times 2 \times (222 + 2) + 22.
                                                                                                                   984 = 2 \times (2 \times (2 + 2) + 22^2).
                                                         919 = 2 \times (22^2 - 22 - 2) - 2/2.
853 = 2 \times (22^2 - 2) - 222/2.
                                                                                                                   985 = 2 \times (22^2 + 2) + 2 + 22/2.
854 = 2 \times (2 \times (222 + 2) - 22) + 2.
                                                         920 = 2 \times (22^2 - 22 - 2).
                                                                                                                   986 = 2 \times (22^2 - 2) + 22.
855 = 2 \times 22^2 - 2 - 222/2.
                                                         921 = 2 \times (22^2 - 22 - 2) + 2/2.
                                                                                                                   987 = 2 \times (22^2 - 2) + 22 + 2/2.
                                                         922 = 2 \times (22^2 - 22) - 2.
                                                                                                                   988 = 2 \times 22^2 + 22 - 2.
856 = 2 \times 2 \times (222 - 2 \times (2 + 2)).
857 = 2 \times 22^2 - 222/2.
                                                         923 = 2 \times (22^2 - 22) - 2/2.
                                                                                                                   989 = 2 \times 22^2 + 22 - 2/2.
858 = 22 \times (2 \times (22 - 2) - 2/2).
                                                         924 = 2 \times (22^2 - 22).
                                                                                                                   990 = 2 \times 22^2 + 22.
859 = 2 \times 22^2 + 2 - 222/2.
                                                         925 = 2 \times (22^2 - 22) + 2/2.
                                                                                                                   991 = 2 \times 22^2 + 22 + 2/2.
                                                         926 = 2 \times (22^2 - 22) + 2.
                                                                                                                   992 = 2 \times 22^2 + 22 + 2.
860 = (22 - 2) \times (2 \times 22 - 2/2).
                                                         927 = 2 \times (22^2 - 22) + 2 + 2/2.
                                                                                                                   993 = 2 \times 22^2 + 22 + 2 + 2/2.
861 = (2 + 2/2) \times ((22 + 2)^2 - 2)/2.
                                                         928 = 2 \times (22^2 - 22 + 2).
862 = 2 \times (2 \times 222 - 2) - 22.
                                                                                                                   994 = 22 + 2 \times (22^2 + 2).
                                                                                                                   995 = 22 + 2 \times (22^2 + 2) + 2/2.
                                                         929 = 2 \times 222 + 22^2 + 2/2.
863 = (22+2) \times (2+2+2)^2 - 2/2.
                                                         930 = 2 \times 222 + 22^2 + 2.
                                                                                                                   996 = 22 + 2 \times (22^2 + 2) + 2.
864 = (22 + 2) \times (2 + 2 + 2)^2.
                                                         931 = 2 \times (2 \times 222 + 22) - 2/2.
                                                                                                                   997 = (2 + 2/2)^2 \times 222/2 - 2.
865 = (22+2) \times (2+2+2)^2 + 2/2.
866 = 2 \times 2 \times 222 - 22.
                                                         932 = 2 \times (2 \times 222 + 22).
                                                                                                                   998 = 2 \times (22^2 + 2 + 2) + 22.
                                                                                                                   999 = (2 + 2/2)^2 \times 222/2.
867 = 2 \times 2 \times 222 - 22 + 2/2.
                                                         933 = 2 \times (2 \times 222 + 22) + 2/2.
868 = 2 \times 2 \times 222 - 22 + 2.
                                                         934 = 2 \times (2 \times 222 + 22) + 2.
                                                                                                                   1000 = 2 \times (22^2 + 2^{(2+2)}).
```

 $935 = 2 \times (22^2 - 22) + 22/2.$

 $869 = (2222 - 22^2)/2.$

$6. \ \, \textbf{Representations Using Number 3}$

| $101 = 3 + 3 \times 33 - 3/3$. | $164 = (3+3) \times 3^3 + 3 - 3/3.$ | $227 = (3+3)^3 + 33/3.$ |
|---|--|--|
| $102 = 3 + 3 \times 33.$ | $165 = (3+3) \times 3^3 + 3.$ | $228 = (3+3)^3 + 3 \times 3 + 3.$ |
| | | |
| $103 = 3 + 3 \times 33 + 3/3.$ | $166 = (3+3) \times 3^3 + 3 + 3/3.$ | $229 = (3^{(3+3)} - 33)/3 - 3.$ |
| $104 = 3 + 3 + 3 \times 33 - 3/3.$ | $167 = (3 \times 333 + 3)/(3 + 3).$ | $230 = (3+3)^3 + 3 + 33/3.$ |
| $105 = 3 + (3 \times 33 + 3).$ | $168 = (3+3) \times 3^3 + 3 + 3.$ | $231 = 33 \times (3+3) + 33.$ |
| | , , | |
| $106 = 3 + 3 + 3 \times 33 + 3/3.$ | $169 = (3+3) \times 3^3 + 3 + 3 + 3/3.$ | $232 = (3^{(3+3)} - 33)/3.$ |
| $107 = 3 \times (33 + 3) - 3/3.$ | $170 = 3 + (3 \times 333 + 3)/(3 + 3).$ | $233 = 3 \times (3 \times 3^3 - 3) - 3/3.$ |
| | $171 = 3 \times (3^3 + 3^3 + 3).$ | |
| $108 = 3 \times (33 + 3).$ | | $234 = 3 \times (3 \times 3^3 - 3).$ |
| $109 = 3 \times (33 + 3) + 3/3.$ | $172 = 3 \times 3 + (3+3) \times 3^3 + 3/3.$ | $235 = 3 + (3^{(3+3)} - 33)/3.$ |
| 110 = (333 - 3)/3. | $173 = (3+3) \times 3^3 + 33/3.$ | $236 = (3^{(3+3)} - 3)/3 - 3 - 3.$ |
| • | | |
| 111 = 333/3. | $174 = (3+3) \times 3^3 + 3 \times 3 + 3.$ | $237 = 3 \times (3 \times 3^3 - 3) + 3.$ |
| 112 = (333 + 3)/3. | $175 = (3 + 3/3)^3 + 333/3.$ | $238 = (3^{(3+3)} + 3)/3 - 3 - 3.$ |
| 113 = 3 + (333 - 3)/3. | $176 = (3+3) \times 3^3 + 3 + 33/3.$ | $239 = (3^{(3+3)} - 3)/3 - 3.$ |
| | | |
| 114 = 3 + 333/3. | $177 = 3 \times (3^3 + 33) - 3.$ | $240 = 3 \times 3 \times 3^3 - 3.$ |
| 115 = 3 + (333 + 3)/3. | $178 = 3 \times (3^3 + 33) - 3 + 3/3.$ | $241 = (3^{(3+3)} + 3)/3 - 3.$ |
| 116 = 3 + 3 + (333 - 3)/3. | $179 = 3 \times (3^3 + 33) - 3/3.$ | $242 = (3^{(3+3)} - 3)/3.$ |
| | | , |
| $117 = 3 \times (33 + 3 + 3).$ | $180 = 3 \times (3^3 + 33).$ | $243 = 3 \times 3 \times 3^3.$ |
| 118 = 3 + 3 + (333 + 3)/3. | $181 = 3 \times (3^3 + 33) + 3/3.$ | $244 = (3^{(3+3)} + 3)/3.$ |
| $119 = 3 \times 3 + (333 - 3)/3.$ | $182 = (3+3)^3 - 33 - 3/3.$ | $245 = 3 + (3^{(3+3)} - 3)/3.$ |
| | | |
| $120 = 3 + 3 \times (33 + 3 + 3).$ | $183 = (3+3)^3 - 33.$ | $246 = 3 \times 3 \times 3^3 + 3.$ |
| $121 = (33/3)^{(3-3/3)}.$ | $184 = (3+3)^3 - 33 + 3/3.$ | $247 = 3 + (3^{(3+3)} + 3)/3.$ |
| $122 = (3^{(3+3)} + 3)/(3+3).$ | $185 = (3+3)^3 + 3 - 33 - 3/3.$ | $248 = 3 + 3 + (3^{(3+3)} - 3)/3.$ |
| | , , | |
| $123 = 3^3 + 3 \times 33 - 3.$ | $186 = (3+3)^3 + 3 - 33.$ | $249 = 33 + (3+3)^3.$ |
| $124 = 3 + (33/3)^{(3-3/3)}.$ | $187 = 33 \times (3+3) - 33/3.$ | $250 = 3 + 3 + (3^{(3+3)} + 3)/3.$ |
| $125 = (3 + 3 - 3/3)^3.$ | $188 = (3+3)^3 - 3^3 - 3/3.$ | $251 = 3 \times 3 + (3^{(3+3)} - 3)/3.$ |
| . , | | |
| $126 = 3 \times (3 \times 3 + 33).$ | $189 = (3+3)^3 - 3^3.$ | $252 = 3 \times (3 \times 3^3 + 3).$ |
| $127 = 3^3 + 3 \times 33 + 3/3.$ | $190 = (3+3)^3 - 3^3 + 3/3.$ | $253 = 3 \times 3 + (3^{(3+3)} + 3)/3.$ |
| | | |
| $128 = 3 + (3 + 3 - 3/3)^3.$ | $191 = 3 \times (3 + 3/3)^3 - 3/3.$ | $254 = (3^{(3+3)} + 33)/3.$ |
| $129 = 3 + 3 \times 33 + 3^3.$ | $192 = 3 \times (3 + 3/3)^3.$ | $255 = 3 \times (3 \times 3^3 + 3) + 3.$ |
| $130 = 3 + 3 \times 33 + 3^3 + 3/3.$ | $193 = 3 \times (3 + 3/3)^3 + 3/3.$ | $256 = (3+3/3)^{(3+3/3)}.$ |
| $131 = 3 + 3 + (3 + 3 - 3/3)^3.$ | | $257 = 3 + (3^{(3+3)} + 33)/3.$ |
| | $194 = 33 \times (3+3) - 3 - 3/3.$ | |
| $132 = 33 + 3 \times 33.$ | $195 = 33 \times (3+3) - 3.$ | $258 = 3 + 3 + 3 \times (3 \times 3^3 + 3).$ |
| $133 = 3 \times 33 + 33 + 3/3.$ | $196 = 33 \times (3+3) - 3 + 3/3.$ | $259 = 3 + (3 + 3/3)^{(3+3/3)}.$ |
| | $197 = 33 \times (3+3) - 3/3.$ | $260 = 3 + 3 + (3^{(3+3)} + 33)/3.$ |
| $134 = 3 \times 3 + (3 + 3 - 3/3)^3.$ | | |
| $135 = 3 + 3 \times 33 + 33.$ | $198 = 33 \times (3+3).$ | $261 = 3 \times (3 \times 3^3 + 3 + 3).$ |
| $136 = (3 + 3/3) \times (33 + 3/3).$ | $199 = 33 \times (3+3) + 3/3.$ | $262 = 3 + 3 + (3 + 3/3)^{(3+3/3)}.$ |
| $137 = 3^3 + (333 - 3)/3.$ | $200 = 33 \times (3+3) + 3 - 3/3.$ | $263 = (33 \times (3^3 - 3) - 3)/3.$ |
| | | |
| $138 = 3^3 + 333/3.$ | $201 = 33 \times (3+3) + 3.$ | $264 = 33 \times (3 \times 3 - 3/3).$ |
| $139 = 3^3 + (333 + 3)/3.$ | $202 = 33 \times (3+3) + 3 + 3/3.$ | $265 = (33 \times (3^3 - 3) + 3)/3.$ |
| $140 = 3 + 3^3 + (333 - 3)/3.$ | $203 = 33 \times (3+3) + 3 + 3 - 3/3.$ | $266 = 3 + (33 \times (3^3 - 3) - 3)/3.$ |
| | | |
| $141 = 33 + 3 \times (33 + 3).$ | $204 = 33 \times (3+3) + 3 + 3.$ | $267 = 3 \times 3 \times (3^3 + 3) - 3.$ |
| $142 = 3 + 3^3 + (333 + 3)/3.$ | $205 = (3+3)^3 - 33/3.$ | $268 = 3 + (33 \times (3^3 - 3) + 3)/3.$ |
| 143 = 33 + (333 - 3)/3. | $206 = (3+3)^3 - (33-3)/3.$ | $269 = 3^3 + (3^{(3+3)} - 3)/3.$ |
| | | |
| $144 = (3+3) \times (3^3 - 3).$ | $207 = (3+3)^3 - 3 \times 3.$ | $270 = 3 \times 3 \times (3^3 + 3).$ |
| $145 = (3+3) \times (3^3 - 3) + 3/3.$ | $208 = (3+3)^3 - 3 \times 3 + 3/3.$ | $271 = 3^3 + (3^{(3+3)} + 3)/3.$ |
| 146 = 3 + 33 + (333 - 3)/3. | $209 = (3+3)^3 - 3 - 3 - 3/3.$ | $272 = 3^3 + 3 + (3^{(3+3)} - 3)/3.$ |
| | | |
| $147 = 3 + (3+3) \times (3^3 - 3).$ | $210 = (3+3)^3 - 3 - 3.$ | $273 = 3 \times 3 \times (3^3 + 3) + 3.$ |
| $148 = (33 \times 3^3 - 3)/(3 + 3).$ | $211 = (3+3)^3 - 3 - 3 + 3/3.$ | $274 = 3 \times 3 \times (3^3 + 3) + 3 + 3/3.$ |
| $149 = (33 \times 3^3 + 3)/(3 + 3).$ | $212 = (3+3)^3 - 3 - 3/3.$ | $275 = 33 + (3^{(3+3)} - 3)/3.$ |
| | | |
| $150 = 3 + 3 + (3 + 3) \times (3^3 - 3).$ | $213 = (3+3)^3 - 3.$ | $276 = 33 + 3 \times 3 \times 3^{3}.$ |
| $151 = (3+3) \times 3^3 - 33/3$. | $214 = (3+3)^3 - 3 + 3/3.$ | $277 = 33 + (3^{(3+3)} + 3)/3.$ |
| $152 = 3^3 + (3 + 3 - 3/3)^3.$ | $215 = (3+3)^3 - 3/3.$ | $278 = 33 + 3 + (3^{(3+3)} - 3)/3.$ |
| | , , | |
| $153 = 3 \times (3^3 + 3^3 - 3).$ | $216 = (3+3)^3.$ | $279 = 3 \times (3 \times (3^3 + 3) + 3).$ |
| $154 = 33 \times (3 + 33/3)/3.$ | $217 = (3+3)^3 + 3/3.$ | $280 = (3+3)^3 + (3+3/3)^3$. |
| $155 = 3^3 + 3 + (3 + 3 - 3/3)^3.$ | $218 = (3+3)^3 + 3 - 3/3.$ | $281 = 3^3 + (3^{(3+3)} + 33)/3.$ |
| | | |
| $156 = (3+3) \times (3^3 - 3/3).$ | $219 = (3+3)^3 + 3.$ | $282 = 3 + 3 \times (3 \times (3^3 + 3) + 3).$ |
| $157 = 3 + 33 \times (3 + 33/3)/3.$ | $220 = (3+3)^3 + 3 + 3/3.$ | $283 = (3+3/3)^3 + (3+3)^3 + 3.$ |
| $158 = 33 + (3 + 3 - 3/3)^{3}.$ | $221 = (3+3)^3 + 3 + 3 - 3/3.$ | $284 = (3 + 3/3) \times ((3 + 3)^3 - 3)/3.$ |
| | | |
| $159 = (3+3) \times 3^3 - 3.$ | $222 = (3+3)^3 + 3 + 3.$ | $285 = 3 \times (3 \times 33 - 3) - 3.$ |
| $160 = (3+3) \times 3^3 - 3 + 3/3.$ | $223 = (3+3)^3 + 3 + 3 + 3/3.$ | $286 = 33 \times (3^3 - 3/3)/3.$ |
| $161 = (3+3) \times 3^3 - 3/3.$ | $224 = (3+3)^3 + 3 \times 3 - 3/3.$ | $287 = 3 \times (3 \times 33 - 3) - 3/3.$ |
| $162 = (3+3) \times 3^3.$ | $225 = (3+3)^3 + 3 \times 3.$ | $288 = 3 \times (3 \times 33 - 3).$ |
| | | |
| 462 (2 . 2) 22 2.22 | | , |
| $163 = (3+3) \times 3^3 + 3/3.$ | $226 = (3+3)^3 + 3 \times 3 + 3/3.$ | $289 = 3 \times (3 \times 33 - 3) + 3/3.$ |

```
422 = 3^3 + 33 \times (3 \times 3 + 3) - 3/3.
                                                        356 = 3^3 + 333 - 3 - 3/3.
290 = 3 \times (3 \times 33 - 3) + 3 - 3/3.
291 = 3 \times (3 \times 33 - 3) + 3.
                                                        357 = 3^3 + 333 - 3.
                                                                                                                 423 = 3 \times (3 \times (33 + 3) + 33).
292 = 3 \times (3 \times 33 - 3) + 3 + 3/3.
                                                        358 = 3^3 + 333 - 3 + 3/3.
                                                                                                                 424 = 3 \times 3^3 + (3 + 3 + 3/3)^3.
293 = 3 \times 3 \times 33 - 3 - 3/3.
                                                        359 = 3^3 + 333 - 3/3.
                                                                                                                 425 = ((3+3) \times ((3+3)^3 - 3) - 3)/3.
                                                        360 = 3^3 + 333.
                                                                                                                 426 = (3+3) \times ((3+3)^3 - 3)/3.
294 = 3 \times 3 \times 33 - 3.
                                                                                                                 427 = ((3+3) \times ((3+3)^3 - 3) + 3)/3.
295 = 3 \times 3 \times 33 - 3 + 3/3.
                                                        361 = 3^3 + 333 + 3/3.
                                                                                                                 428 = ((3+3)^{(3+3/3)} - 3)/3 - 3.
296 = 3 \times 3 \times 33 - 3/3.
                                                        362 = (33 \times 33 - 3)/3.
297 = 3 \times 3 \times 33.
                                                        363 = 33 \times 33/3.
                                                                                                                 429 = 33 + 33 \times (3 \times 3 + 3).
                                                                                                                 430 = (3 - 3/3) \times ((3 + 3)^3 - 3/3).
                                                        364 = (33 \times 33 + 3)/3.
298 = 3 \times 3 \times 33 + 3/3.
                                                                                                                 431 = ((3+3)^{(3+3/3)} - 3)/3.
299 = 3 \times 3 \times 33 + 3 - 3/3.
                                                        365 = 3 + (33 \times 33 - 3)/3.
                                                        366 = 33 + 333.
                                                                                                                 432 = 3 \times (3+3) \times (3^3-3).
300 = 3 \times 3 \times 33 + 3.
                                                                                                                 433 = ((3+3)^{(3+3/3)} + 3)/3.
301 = 3 \times 3 \times 33 + 3 + 3/3.
                                                        367 = 3 + (33 \times 33 + 3)/3.
                                                                                                                 434 = 3 + ((3+3)^{(3+3/3)} - 3)/3.
302 = 3 \times 3 \times 33 + 3 + 3 - 3/3.
                                                        368 = 3 + 3 + (33 \times 33 - 3)/3.
303 = 3 \times 3 \times 33 + 3 + 3.
                                                        369 = 3 + 333 + 33.
                                                                                                                 435 = 3 + 3 \times 33 + 333.
                                                                                                                 436 = 3 + ((3+3)^{(3+3/3)} + 3)/3.
                                                        370 = 3^3 + (3 + 3 + 3/3)^3.
304 = 3 \times 3 \times 33 + 3 + 3 + 3/3.
305 = 333 - 3^3 - 3/3.
                                                        371 = 3^3 + 333 + 33/3.
                                                                                                                 437 = ((3+3) \times ((3+3)^3 + 3) - 3)/3.
                                                                                                                 438 = (3+3) \times ((3+3)^3 + 3)/3.
306 = 3 \times (3 \times 33 + 3).
                                                        372 = 3 + 3 + 333 + 33.
307 = 3 \times (3 \times 33 + 3) + 3/3.
                                                        373 = 3 + 3^3 + (3 + 3 + 3/3)^3.
                                                                                                                 439 = ((3+3) \times ((3+3)^3 + 3) + 3)/3.
308 = 3 \times 3 \times 33 + 33/3.
                                                        374 = 33 \times (33 + 3/3)/3.
                                                                                                                 440 = (3 + 3/3) \times (333 - 3)/3.
309 = 3 \times (3 \times 33 + 3) + 3.
                                                        375 = 3 \times (3 + 3 - 3/3)^3.
                                                                                                                 441 = 3 \times ((3+3) \times (3^3 - 3) + 3).
310 = (3 + 3 + 3/3)^3 - 33.
                                                        376 = 33 + (3 + 3 + 3/3)^3.
                                                                                                                 442 = 3 \times 33 + (3 + 3 + 3/3)^3.
311 = 3 \times 3 \times 33 + 3 + 33/3.
                                                        377 = 3 + 33 \times (33 + 3/3)/3.
                                                                                                                 443 = 333 + (333 - 3)/3.
312 = 3 \times (3 \times 33 + 3) + 3 + 3.
                                                        378 = 3 \times (3 \times 33 + 3^3).
                                                                                                                 444 = 333 + 333/3.
313 = 3 - 33 + (3 + 3 + 3/3)^3.
                                                        379 = 3 + 33 + (3 + 3 + 3/3)^3.
                                                                                                                 445 = 333 + (333 + 3)/3.
314 = 3 \times 33 + (3+3)^3 - 3/3.
                                                        380 = 3 + 3 + 33 \times (33 + 3/3)/3.
                                                                                                                 446 = (3 \times 33 \times 3^3 + 3)/(3 + 3).
315 = 3 \times (3 \times 33 + 3 + 3).
                                                        381 = 3 + 3 \times (3 \times 33 + 3^3).
                                                                                                                 447 = 3 + 333 + 333/3.
                                                        382 = 3333/3 - 3^{(3+3)}.
316 = (3 + 3 + 3/3)^3 - 3^3.
                                                                                                                 448 = (3 + 3/3) \times (333 + 3)/3.
                                                                                                                 449 = (3 \times 33 \times 3^3 + 3)/(3 + 3) + 3.
317 = 333 - 3^3 + 33/3.
                                                        383 = (3+3) \times (3+3/3)^3 - 3/3.
                                                        384 = (3+3) \times (3+3/3)^3.
318 = 3 \times 33 + (3+3)^3 + 3.
                                                                                                                 450 = (3+3) \times (3 \times (3^3 - 3) + 3).
319 = 333 - 3 - 33/3.
                                                        385 = (3+3) \times (3+3/3)^3 + 3/3.
                                                                                                                 451 = (3 + 3/3) \times (333 + 3)/3 + 3.
                                                        386 = 3^{(3+3)} - (3+3+3/3)^3.
320 = 333 - 3 - (33 - 3)/3.
                                                                                                                 452 = (3 + 3/3) \times (3 + (333 - 3)/3).
                                                                                                                 453 = 3 \times (3+3) \times 3^3 - 33.
321 = 333 - 3 \times 3 - 3.
                                                        387 = 3 + (3 + 3) \times (3 + 3/3)^3.
322 = 333 - 33/3.
                                                        388 = 3 + (3+3) \times (3+3/3)^3 + 3/3.
                                                                                                                 454 = 3 \times (3+3) \times 3^3 - 33 + 3/3.
323 = 333 - (33 - 3)/3.
                                                        389 = 3^3 + (33 \times 33 - 3)/3.
                                                                                                                 455 = (3+3)^3 + (3^{(3+3)} - 3)/3 - 3.
                                                        390 = 3^3 + 33 \times 33/3.
                                                                                                                 456 = 3 \times (3 + 3) \times 3^3 - 33 + 3.
324 = 3 \times 3 \times (33 + 3).
                                                                                                                 457 = (3+3)^3 + (3^{(3+3)} + 3)/3 - 3.
                                                        391 = 3^3 + (33 \times 33 + 3)/3.
325 = 3 + 333 - 33/3.
                                                                                                                 458 = (3+3)^3 + (3^{(3+3)} - 3)/3.
326 = 333 - 3 - 3 - 3/3.
                                                        392 = 33 \times (3 \times 3 + 3) - 3 - 3/3.
                                                                                                                 459 = 3 \times 3 \times (3^3 - 3 + 3^3).
327 = 333 - 3 - 3.
                                                        393 = 33 \times (3 \times 3 + 3) - 3.
328 = 333 - 3 - 3 + 3/3.
                                                                                                                 460 = (3+3)^3 + (3^{(3+3)} + 3)/3.
                                                        394 = 33 \times (3 \times 3 + 3) - 3 + 3/3.
329 = 333 - 3 - 3/3.
                                                                                                                 461 = 33 \times (3 + 33/3) - 3/3.
                                                        395 = 33 \times (3 \times 3 + 3) - 3/3.
                                                                                                                 462 = 33 \times (3 + 33/3).
330 = 333 - 3.
                                                        396 = 33 \times (3 \times 3 + 3).
                                                        397 = 33 \times (3 \times 3 + 3) + 3/3.
331 = 333 - 3 + 3/3.
                                                                                                                 463 = 33 \times (3 + 33/3) + 3/3.
332 = 333 - 3/3.
                                                        398 = 33 \times (3 \times 3 + 3) + 3 - 3/3.
                                                                                                                 464 = 3 + 33 \times (3 + 33/3) - 3/3.
333 = 333.
                                                                                                                 465 = 3 + 33 \times (3 + 33/3).
                                                        399 = 33 \times (3 \times 3 + 3) + 3.
334 = 333 + 3/3.
                                                        400 = 33 \times (3 \times 3 + 3) + 3 + 3/3.
                                                                                                                 466 = 3 + 33 \times (3 + 33/3) + 3/3.
335 = 333 + 3 - 3/3.
                                                        401 = 33 \times (3 \times 3 + 3) + 3 + 3 - 3/3.
                                                                                                                 467 = (3+3) \times (3 \times 3^3 - 3) - 3/3.
336 = 333 + 3.
                                                        402 = 33 \times (3 \times 3 + 3) + 3 + 3.
                                                                                                                 468 = (3+3) \times (3 \times 3^3 - 3).
                                                                                                                 469 = (3+3) \times (3 \times 3^3 - 3) + 3/3.
337 = 333 + 3 + 3/3.
                                                        403 = 33 \times (3 \times 3 + 3) + 3 + 3 + 3/3.
                                                                                                                 470 = (3+3) \times (3 \times 3^3 - 3) + 3 - 3/3.
338 = 333 + 3 + 3 - 3/3.
                                                        404 = 333 + ((3+3)^3 - 3)/3.
                                                        405 = 3^3 \times (3 \times 3 + 3 + 3).
339 = 333 + 3 + 3.
                                                                                                                 471 = (3+3) \times (3 \times 3^3 - 3) + 3.
                                                        406 = 3^3 \times (3 \times 3 + 3 + 3) + 3/3.
                                                                                                                 472 = (3+3) \times (3 \times 3^3 - 3) + 3 + 3/3.
340 = (3 + 3 + 3/3)^3 - 3.
                                                                                                                 473 = 33 \times (3 + 33/3) + 33/3.
341 = 333 + 3 \times 3 - 3/3.
                                                        407 = 33 \times 333/(3^3).
342 = 333 + 3 \times 3.
                                                        408 = 3^3 \times (3 \times 3 + 3 + 3) + 3.
                                                                                                                 474 = 3 \times ((3+3) \times 3^3 - 3) - 3.
                                                                                                                 475 = 3 \times (3+3) \times 3^3 - 33/3.
                                                        409 = 3^3 \times (3 \times 3 + 3 + 3) + 3 + 3/3.
343 = (3 + 3 + 3/3)^3.
                                                        410 = 33 \times 333/(3^3) + 3.
344 = 333 + 33/3.
                                                                                                                 476 = (3 + 33/3) \times (33 + 3/3).
345 = 333 + 3 \times 3 + 3.
                                                        411 = 3 \times 3^3 + 333 - 3.
                                                                                                                 477 = 3 \times ((3+3) \times 3^3 - 3).
                                                        412 = 3 \times 3^3 + 333 - 3 + 3/3.
                                                                                                                 478 = 3 \times ((3+3) \times 3^3 - 3) + 3/3.
346 = 3 + (3 + 3 + 3/3)^3.
                                                                                                                 479 = (3 - 3/3)^{(3 \times 3)} - 33.
                                                        413 = 3 \times 3^3 + 333 - 3/3.
347 = 3 + 333 + 33/3.
348 = 3 + 3 + 333 + 3 \times 3.
                                                        414 = 3 \times 3^3 + 333.
                                                                                                                 480 = 3 \times ((3+3) \times 3^3 - 3) + 3.
                                                                                                                 481 = 3 \times ((3+3) \times 3^3 - 3) + 3 + 3/3.
349 = 3 + 3 + (3 + 3 + 3/3)^3.
                                                        415 = 3 \times 3^3 + 333 + 3/3.
                                                                                                                 482 = (3 - 3/3)^{(3\times3)} + 3 - 33.
                                                        416 = 3 \times 3^3 + 333 + 3 - 3/3.
350 = 3 + 3 + 333 + 33/3.
                                                        417 = 3 \times 3^3 + 333 + 3.
                                                                                                                 483 = 3 \times (3 + 3) \times 3^3 - 3.
351 = 3 \times 3 \times (33 + 3 + 3).
                                                                                                                 484 = 3 \times (3+3) \times 3^3 - 3 + 3/3.
352 = 3 \times 3 + (3 + 3 + 3/3)^3.
                                                        418 = 33 \times (3^3 + 33/3)/3.
                                                        419 = (3^3 + 3) \times (3 + 33/3) - 3/3.
                                                                                                                 485 = (3 - 3/3)^{(3 \times 3)} - 3^3.
353 = 3 \times 3 + 333 + 33/3.
354 = 3 + 333 + 3 \times (3 + 3).
                                                        420 = (3^3 + 3) \times (3 + 33/3).
                                                                                                                 486 = 3 \times (3 + 3) \times 3^3.
355 = 3 + 3 \times 3 + (3 + 3 + 3/3)^3.
                                                        421 = ((3+3)^{(3+3/3)} - 33)/3.
                                                                                                                 487 = 3 \times (3 + 3) \times 3^3 + 3/3.
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488 = (3 - 3/3)^{(3 \times 3)} + 3 - 3^3.
                                                           554 = (3333 - 3 \times 3)/(3 + 3).
                                                                                                                      620 = 3 \times (3+3)^3 - 3^3 - 3/3.
489 = 3 \times (3 + 3) \times 3^3 + 3.
                                                           555 = (3333 - 3)/(3 + 3).
                                                                                                                      621 = 3 \times ((3+3)^3 - 3 \times 3).
490 = 3 \times (3 + 3) \times 3^3 + 3 + 3/3.
                                                           556 = (3333 + 3)/(3 + 3).
                                                                                                                      622 = 3 \times ((3+3)^3 - 3 \times 3) + 3/3.
491 = (3 - 3/3)^{(3 \times 3)} + 3 + 3 - 3^3.
                                                                                                                      623 = 3 \times (3+3)^3 - 3^3 + 3 - 3/3.
                                                           557 = (3333 + 3 \times 3)/(3 + 3).
                                                           558 = 3 \times ((3+3)^3 + 3 - 33).
                                                                                                                      624 = 3 \times ((3+3)^3 - 3 \times 3) + 3.
492 = 3 \times (3+3) \times 3^3 + 3 + 3.
                                                                                                                      625 = (3 + 3 - 3/3)^{(3+3/3)}.
493 = 3 \times (3+3) \times 3^3 + 3 + 3 + 3/3.
                                                           559 = (3333 + 3)/(3 + 3) + 3.
494 = (3 - 3/3)^{(3\times3)} - 3 \times (3+3).
                                                                                                                      626 = (3 + 3 - 3/3)^{(3+3/3)} + 3/3.
                                                           560 = (3333 + 3^3)/(3 + 3).
495 = 3 \times ((3+3) \times 3^3 + 3).
                                                                                                                      627 = 3 \times 33 \times (3+3) + 33.
                                                           561 = 33 \times (3 + 3 + 33/3).
                                                                                                                      628 = (3 + 3 - 3/3)^{(3+3/3)} + 3.
496 = 3 \times ((3+3) \times 3^3 + 3) + 3/3.
                                                           562 = ((3 \times 3 + 3 + 3)^3 - 3)/(3 + 3).
                                                                                                                      629 = 3^{(3+3)} - 3 \times 33 - 3/3.
497 = 3 \times (3+3) \times 3^3 + 33/3.
                                                           563 = ((3 \times 3 + 3 + 3)^3 + 3)/(3 + 3).
                                                           564 = 3 \times ((3+3)^3 - 3^3) - 3.
                                                                                                                      630 = 3^{(3+3)} - 3 \times 33.

631 = 3^{(3+3)} - 3 \times 33 + 3/3.
498 = 3 \times ((3+3) \times 3^3 + 3) + 3.
499 = (3 \times 3 \times 333 - 3)/(3 + 3).
                                                           565 = ((3 \times 3 + 3)^3 - 33)/3.
                                                                                                                      632 = 3^{(3+3)} - 3 \times 33 + 3 - 3/3.
500 = (3 + 3/3) \times (3 + 3 - 3/3)^3.
                                                           566 = 3 \times ((3+3)^3 - 3^3) - 3/3.
                                                                                                                      633 = 3^{(3+3)} - 3 \times 33 + 3.
                                                           567 = 3 \times ((3+3)^3 - 3^3).
501 = (3+3) \times (3 \times 3^3 + 3) - 3.
                                                           568 = ((3 \times 3 + 3)^3 - 33)/3 + 3.
                                                                                                                      634 = 3 \times (3+3)^3 - 3 - 33/3.
502 = (3 \times 3 \times 333 - 3)/(3 + 3) + 3.
                                                           569 = ((3 \times 3 + 3)^3 - 3)/3 - 3 - 3.

570 = 3 \times ((3 + 3)^3 - 3^3) + 3.
503 = (3 - 3/3)^{(3 \times 3)} - 3 \times 3.
                                                                                                                      635 = 3 \times ((3+3)^3 - 3) - 3 - 3/3.
                                                                                                                      636 = 3 \times ((3+3)^3 - 3) - 3.
504 = (3+3) \times (3 \times 3^3 + 3).
                                                                                                                      637 = 3 \times (3+3)^3 - 33/3.
505 = (3+3) \times (3 \times 3^3 + 3) + 3/3.
                                                           571 = ((3 \times 3 + 3)^3 + 3)/3 - 3 - 3.
506 = (3 - 3/3)^{(3 \times 3)} - 3 - 3.
                                                           572 = ((3 \times 3 + 3)^3 - 3)/3 - 3.
                                                                                                                      638 = 3 \times ((3+3)^3 - 3) - 3/3.
                                                                                                                      639 = 3 \times ((3+3)^3 - 3).
507 = (3+3) \times (3 \times 3^3 + 3) + 3.
                                                           573 = ((3 \times 3 + 3)^3)/3 - 3.
                                                                                                                      640 = 3 \times ((3+3)^3 - 3) + 3/3.
508 = (3 - 3/3)^{(3 \times 3)} - 3 - 3/3.
                                                           574 = ((3 \times 3 + 3)^3 + 3)/3 - 3.
509 = (3 - 3/3)^{(3 \times 3)} - 3.
                                                                                                                      641 = 3 \times ((3+3)^3 - 3) + 3 - 3/3.
                                                           575 = ((3 \times 3 + 3)^3 - 3)/3.
510 = 3^{(3+3)} - (3+3)^3 - 3.
                                                           576 = (3 \times 3 + 3)^3/3.
                                                                                                                      642 = 3 \times ((3+3)^3 - 3) + 3.
511 = (3 - 3/3)^{(3 \times 3)} - 3/3.
                                                           577 = ((3 \times 3 + 3)^3 + 3)/3.
                                                                                                                      643 = 3 \times ((3+3)^3 - 3) + 3 + 3/3.
512 = (3 - 3/3)^{(3 \times 3)}.
                                                           578 = ((3 \times 3 + 3)^3 - 3)/3 + 3.
                                                                                                                      644 = 3 \times (3+3)^3 - 3 - 3/3.
513 = (3 - 3/3)^{(3 \times 3)} + 3/3.
                                                           579 = (3 \times 3 + 3)^3/3 + 3.
                                                                                                                      645 = 3 \times (3+3)^3 - 3.
514 = (3 - 3/3)^{(3 \times 3)} + 3 - 3/3.
                                                           580 = ((3 \times 3 + 3)^3 + 3)/3 + 3.
                                                                                                                      646 = 3 \times (3+3)^3 - 3 + 3/3.
515 = (3 - 3/3)^{(3 \times 3)} + 3.
                                                           581 = ((3 \times 3 + 3)^3 - 3)/3 + 3 + 3.
                                                                                                                      647 = 3 \times (3+3)^3 - 3/3.
516 = 3^{(3+3)} - (3+3)^3 + 3.
                                                           582 = (3 \times 3 + 3)^3/3 + 3 + 3.
                                                                                                                      648 = 3 \times (3+3)^3.
517 = (3 - 3/3)^{(3 \times 3)} + 3 + 3 - 3/3.
                                                           583 = ((3 \times 3 + 3)^3 + 3)/3 + 3 + 3.
                                                                                                                      649 = 3 \times (3+3)^3 + 3/3.
518 = (3 - 3/3)^{(3 \times 3)} + 3 + 3.
                                                           584 = 3 \times 3 + ((3 \times 3 + 3)^3 - 3)/3.
                                                                                                                      650 = 3 \times (3+3)^3 + 3 - 3/3.
519 = 3 \times (3 + 3) \times 3^3 + 33.
                                                           585 = 3 \times (33 \times (3 + 3) - 3).
                                                                                                                      651 = 3 \times (3+3)^3 + 3.
520 = 3 \times 3 + (3 - 3/3)^{(3 \times 3)} - 3/3.
                                                           586 = 3 \times 3 + ((3 \times 3 + 3)^3 + 3)/3.
                                                                                                                      652 = 3 \times (3+3)^3 + 3 + 3/3.
521 = 3 \times 3 + (3 - 3/3)^{(3 \times 3)}.
                                                           587 = ((3 \times 3 + 3)^3 + 33)/3.
                                                                                                                      653 = 3 \times (3+3)^3 + 3 + 3 - 3/3.
                                                                                                                      654 = 3 \times (3+3)^3 + 3 + 3.
522 = (3+3) \times (3 \times 3^3 + 3 + 3).
                                                           588 = 3 \times (33 \times (3 + 3) - 3) + 3.
523 = (3 - 3/3)^{(3 \times 3)} + 33/3.
                                                                                                                      655 = 3 \times ((3+3)^3 + 3) - 3 + 3/3.
                                                           589 = 3 \times (33 \times (3+3) - 3) + 3 + 3/3.
524 = 3 \times 3 + (3 - 3/3)^{(3 \times 3)} + 3.
                                                           590 = ((3 \times 3 + 3)^3 + 33)/3 + 3.
                                                                                                                      656 = 3 \times ((3+3)^3 + 3) - 3/3.
525 = (3+3) \times (3 \times 3^3 + 3 + 3) + 3.
                                                                                                                      657 = 3 \times ((3+3)^3 + 3).
                                                           591 = 3 \times 33 \times (3 + 3) - 3.
526 = (3 - 3/3)^{(3 \times 3)} + 3 + 33/3.
                                                                                                                      658 = 3 \times ((3+3)^3 + 3) + 3/3.
                                                           592 = 3 \times 33 \times (3 + 3) - 3 + 3/3.
527 = 3 \times 3 + (3 - 3/3)^{(3 \times 3)} + 3 + 3.
                                                                                                                      659 = 3 \times (3+3)^3 + 33/3.
                                                           593 = 3 \times 33 \times (3+3) - 3/3.
528 = 33 \times (3^3 - 33/3).
                                                           594 = 3 \times 33 \times (3+3).
                                                                                                                      660 = 3 \times ((3+3)^3 + 3) + 3.
529 = (3^3 - 3 - 3/3)^{(3-3/3)}
                                                                                                                      661 = 3 \times ((3+3)^3 + 3) + 3 + 3/3.
                                                           595 = 3 \times 33 \times (3 + 3) + 3/3.
530 = 3 \times (3+3) + (3-3/3)^{(3\times3)}.
                                                                                                                      662 = 3 \times (3+3)^3 + 3 + 33/3.
                                                           596 = 3 \times 33 \times (3 + 3) + 3 - 3/3.
531 = 3 \times (3 \times (3^3 + 33) - 3).
                                                                                                                      663 = 3 \times ((3+3)^3 + 3) + 3 + 3.
                                                           597 = 3 \times 33 \times (3 + 3) + 3.
532 = (3^3 - 3 - 3/3)^{(3-3/3)} + 3.
                                                           598 = 3 \times 33 \times (3 + 3) + 3 + 3/3.
                                                                                                                      664 = (3 - 3/3) \times (333 - 3/3).
                                                           599 = (33/3)^3 - 3^{(3+3)} - 3.
                                                                                                                      665 = 3^{(3+3)} - (3+3/3)^3.
533 = 3 \times (3+3) + (3-3/3)^{(3\times3)} + 3.
534 = 33 \times (3 + 3) + 333 + 3.
                                                           600 = 3 \times 33 \times (3 + 3) + 3 + 3.
                                                                                                                      666 = 3 \times ((3+3)^3 + 3 + 3).
535 = (3333 - (3 \times 3 + 3)^3)/3.
                                                           601 = 3 \times 33 \times (3+3) + 3 + 3 + 3/3.
                                                                                                                      667 = ((3+3) \times 333 + 3)/3.
                                                                                                                      668 = 3^{(3+3)} - (3+3/3)^3 + 3.
536 = 3^3 + (3 - 3/3)^{(3 \times 3)} - 3.
                                                           602 = (33/3)^3 - 3^{(3+3)}.
                                                                                                                      669 = 333 + 333 + 3.
                                                           603 = 3 \times (33 \times (3+3) + 3).
537 = 3 \times 3 \times (3^3 + 33) - 3.
538 = 3^3 + (3 - 3/3)^{(3 \times 3)} - 3/3.
                                                           604 = 3^3 + ((3 \times 3 + 3)^3 + 3)/3.
                                                                                                                      670 = 3 + ((3+3) \times 333 + 3)/3.
539 = 3^3 + (3 - 3/3)^{(3 \times 3)}.
                                                           605 = 3 + (33/3)^3 - 3^{(3+3)}.
                                                                                                                      671 = 33 \times ((3/3 + 3)^3 - 3)/3.
                                                                                                                      672 = 3^3 + 3 \times (3+3)^3 - 3.
540 = 3 \times 3 \times (3^3 + 33).
                                                           606 = 3 \times (33 \times (3 + 3) + 3) + 3.
                                                                                                                      673 = (3^3 - 3/3)^{(3-3/3)} - 3.
541 = 3 \times 3 \times (3^3 + 33) + 3/3.
                                                           607 = 3 \times (33 \times (3+3) + 3) + 3 + 3/3.
542 = 3^3 + (3 - 3/3)^{(3 \times 3)} + 3.
                                                           608 = 33 + ((3 \times 3 + 3)^3 - 3)/3.
                                                                                                                      674 = 3^3 + 3 \times (3+3)^3 - 3/3.
543 = 3 \times 3 \times (3^3 + 33) + 3.
                                                           609 = 33 + (3 \times 3 + 3)^3/3.
                                                                                                                      675 = 3^3 + 3 \times (3+3)^3.
                                                                                                                      676 = (3^3 - 3/3)^{(3-3/3)}.
544 = ((3 \times 3 + 3)^3 + 3)/3 - 33.
                                                           610 = 33 + ((3 \times 3 + 3)^3 + 3)/3.
545 = (3 - 3/3)^{(3 \times 3)} + 33.
                                                           611 = 3 \times 33 + (3 - 3/3)^{(3 \times 3)}.
                                                                                                                      677 = ((3+3) \times 333 + 33)/3.
546 = (3+3)^3 + 333 - 3.
                                                           612 = (3 + 3) \times (3 \times 33 + 3).
                                                                                                                      678 = 3 \times (3+3)^3 + 3^3 + 3.
                                                                                                                      679 = 3 + (3^3 - 3/3)^{(3-3/3)}.
547 = ((3 \times 3 + 3)^3 + 3)/3 - 33 + 3.
                                                           613 = (3+3) \times (3 \times 33 + 3) + 3/3.
548 = (3 - 3/3)^{(3 \times 3)} + 33 + 3.
                                                           614 = 3 \times (3+3)^3 - 33 - 3/3.
                                                                                                                      680 = 33 + 3 \times (3 + 3)^3 - 3/3.
549 = 3 \times ((3+3)^3 - 33).
                                                           615 = 3 \times (3+3)^3 - 33.
                                                                                                                      681 = 33 + 3 \times (3 + 3)^3.
550 = 3 \times ((3+3)^3 - 33) + 3/3.
                                                           616 = 3 \times (3+3)^3 - 33 + 3/3.
                                                                                                                      682 = 33 + 3 \times (3 + 3)^3 + 3/3.
551 = (3333 - 3^3)/(3 + 3).
                                                           617 = 3^{(3+3)} - (333 + 3)/3.
                                                                                                                      683 = (33/3)^3 - 3 \times (3+3)^3.
552 = (3+3)^3 + 333 + 3.
                                                           618 = +3 \times (3+3)^3 + 3 - 33.
                                                                                                                      684 = 3 \times (3+3)^3 + 33 + 3.
                                                                                                                      685 = 3^{(3+3)} - 33 - 33/3.
                                                           619 = 3^{(3+3)} - (333 - 3)/3.
553 = (3333 + 3)/(3 + 3) - 3.
```

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752 = 3^{(3+3)} + 3^3 - 3 - 3/3.
686 = (3 - 3/3) \times (3 + 3 + 3/3)^3.
                                                                                                                    818 = 3^3 + 33 \times (3^3 - 3) - 3/3.
687 = 3^{(3+3)} - 33 - 3 \times 3.
                                                          753 = 3^{(3+3)} + 3^3 - 3.
                                                                                                                    819 = 3^3 + 33 \times (3^3 - 3).
                                                          754 = 3^{(3+3)} + 3^3 - 3 + 3/3.
688 = 3^{(3+3)} + 3 - 33 - 33/3.
                                                                                                                    820 = 3^3 + 33 \times (3^3 - 3) + 3/3.
                                                          755 = 3^{(3+3)} + 3^3 - 3/3.
689 = (3 - 3/3) \times (3 + 3 + 3/3)^3 + 3.
                                                                                                                    821 = 3^3 \times (3^3 + 3) + 33/3.
                                                          756 = 3^{(3+3)} + 3^3.
690 = 3 \times ((3+3)^3 + 3) + 33.
                                                                                                                    822 = 3^3 + 33 \times (3^3 - 3) + 3.
691 = 3^{(3+3)} - 3^3 - 33/3.
                                                          757 = 3^{(3+3)} + 3^3 + 3/3.
                                                                                                                    823 = 3^3 + 33 \times (3^3 - 3) + 3 + 3/3.
692 = 3^{(3+3)} - 3 - 33 - 3/3.
                                                                                                                    824 = 3^3 \times (3^3 + 3) + 3 + 33/3.
                                                          758 = 3^{(3+3)} + 3^3 + 3 - 3/3.
                                                          759 = 3^{(3+3)} + 3^3 + 3.
                                                                                                                    825 = 33 + 33 \times (3^3 - 3).
693 = 33 \times (3 \times (3 + 3) + 3).
                                                          760 = 3^{(3+3)} + 3^3 + 3 + 3/3.
                                                                                                                    826 = 33 + 33 \times (3^3 - 3) + 3/3.
694 = 33 \times (3 \times (3 + 3) + 3) + 3/3.
                                                          761 = 3^{(3+3)} + 33 - 3/3.
                                                                                                                    827 = 3 \times 33 + 3^{(3+3)} - 3/3.
695 = 3^{(3+3)} - 33 - 3/3.
696 = 3^{(3+3)} - 33.
                                                          762 = 3^{(3+3)} + 33.
                                                                                                                    828 = 3 \times 33 + 3^{(3+3)}.
697 = 3^{(3+3)} - 33 + 3/3.
                                                          763 = 3^{(3+3)} + 33 + 3/3.
                                                                                                                    829 = 3 \times 33 + 3^{(3+3)} + 3/3.
698 = 3^{(3+3)} - 33 + 3 - 3/3.
                                                          764 = 3^{(3+3)} + 33 + 3 - 3/3.
                                                                                                                    830 = 3 \times 33 + 3^{(3+3)} + 3 - 3/3.
699 = 3^{(3+3)} - 33 + 3.
                                                          765 = 3^{(3+3)} + 33 + 3.
                                                                                                                    831 = 3 \times 33 + 3^{(3+3)} + 3.
700 = 3^{(3+3)} - 33 + 3 + 3/3.
                                                          766 = 3^{(3+3)} + 33 + 3 + 3/3.
                                                                                                                    832 = (3^3 - 3/3) \times (33 - 3/3).
701 = 3^{(3+3)} - 3^3 - 3/3.
                                                          767 = 3^{(3+3)} + 3^3 + 33/3.
                                                                                                                    833 = (3333 - 3/3)/(3 + 3/3).
702 = 3^{(3+3)} - 3^3.
                                                          768 = 3^{(3+3)} + 33 + 3 + 3.
                                                                                                                    834 = 3 \times 33 + 3^{(3+3)} + 3 + 3.
703 = 3^{(3+3)} - 3^3 + 3/3.
                                                          769 = 3^{(3+3)} + 33 + 3 + 3 + 3/3.
                                                                                                                    835 = (3^3 - 3/3) \times (33 - 3/3) + 3.
                                                          770 = 3^{(3+3)} + 3^3 + 3 + 33/3.
704 = 33 \times (3 + 3/3)^3/3.
                                                                                                                    836 = 3^3 + 3^3 \times (3^3 + 3) - 3/3.
705 = 3^{(3+3)} - 3^3 + 3.
                                                          771 = 3^{(3+3)} + 3 \times 3 + 33.
                                                                                                                    837 = 3^3 + 3^3 \times (3^3 + 3).
                                                                                                                    838 = 3^3 + 3^3 \times (3^3 + 3) + 3/3.
706 = 3^{(3+3)} - 3^3 + 3 + 3/3.
                                                          772 = 3^{(3+3)} + 3 \times 3 + 33 + 3/3.
                                                          773 = 3^{(3+3)} + 33 + 33/3.
                                                                                                                    839 = 3^{(3+3)} + (333 - 3)/3.
707 = 33 \times (3/3 + 3)^3/3 + 3.
                                                          774 = 3^{(3+3)} + 3 \times 3 + 33 + 3.
                                                                                                                    840 = 3^{(3+3)} + 333/3.
708 = 3^{(3+3)} - 3^3 + 3 + 3.
709 = 3^{(3+3)} - 3 \times 3 - 33/3.
                                                          775 = 3333/3 - 333 - 3.
                                                                                                                    841 = 3^{(3+3)} + (333 + 3)/3.
710 = 3^{(3+3)} - 3 \times (3+3) - 3/3.
                                                          776 = 3^{(3+3)} + 33 + 3 + 33/3.
                                                                                                                    842 = 3^{(3+3)} + 3 + (333 - 3)/3.
711 = 3^{(3+3)} - 3 \times (3+3).
                                                          777 = 3^3 \times (3^3 + 3) - 33.
                                                                                                                    843 = 3^3 \times (3^3 + 3) + 33.
712 = 3^{(3+3)} - 3 \times (3+3) + 3/3.
                                                          778 = 3333/3 - 333.
                                                                                                                    844 = 3^{(3+3)} + 3 + (333 + 3)/3.
713 = 3^{(3+3)} - 3^3 + 33/3.
                                                          779 = 33 \times 3^3 - (333 + 3)/3.
                                                                                                                    845 = (3 - 3/3)^{(3 \times 3)} + 333.
714 = 3^{(3+3)} + 3 - 3 \times (3+3).
                                                          780 = (3^3 + 3) \times (3^3 - 3/3).
                                                                                                                    846 = 3^3 \times (3^3 + 3) + 33 + 3.
715 = 3^{(3+3)} - 3 - 33/3.
                                                                                                                    847 = 33 \times (3 \times 3^3 - 3 - 3/3)/3.
                                                          781 = 33 \times ((3+3)^3 - 3)/(3 \times 3).
716 = 3^{(3+3)} - 3 - (33 - 3)/3.
                                                          782 = 3^{(3+3)} + 3^3 + 3^3 - 3/3.
                                                                                                                    848 = (3 - 3/3)^{(3 \times 3)} + 3 + 333.
717 = 3^{(3+3)} - 3 - 3 \times 3.
                                                          783 = 3 \times 3 \times (3 \times 3^3 + 3 + 3).
                                                                                                                    849 = 33 \times 3^3 - 3 \times 3 - 33.
718 = 3^{(3+3)} - 33/3.
                                                          784 = (3^3 + 3/3)^{(3-3/3)}.
                                                                                                                    850 = 3^{(3+3)} + (33/3)^{(3-3/3)}.
                                                          785 = 33 \times (3^3 - 3) - 3 - 3 - 3/3.

786 = 33 \times (3^3 - 3) - 3 - 3.
719 = 3^{(3+3)} - (33 - 3)/3.
                                                                                                                    851 = 3^{(3+3)} + (3^{(3+3)} + 3)/(3+3).
720 = 3^{(3+3)} - 3 \times 3.
                                                                                                                    852 = (3 + 3/3) \times ((3 + 3)^3 - 3).
721 = 3^{(3+3)} + 3 - 33/3.
                                                          787 = (3^3 + 3/3)^{(3-3/3)} + 3.
                                                                                                                    853 = (3+3/3) \times ((3+3)^3 - 3) + 3/3.
722 = 3^{(3+3)} - 3 - 3 - 3/3.
                                                          788 = 33 \times (3^3 - 3) - 3 - 3/3.
                                                                                                                    854 = 3^{(3+3)} + (3+3-3/3)^3.
723 = 3^{(3+3)} - 3 - 3.
                                                          789 = 33 \times (3^3 - 3) - 3.
                                                                                                                    855 = 3 \times (3 \times (3 \times 33 - 3) - 3).
724 = 3^{(3+3)} - 3 - 3 + 3/3.
                                                                                                                    856 = 3 \times 3^{(3+3)} - (33/3)^3.
                                                          790 = 33 \times (3^3 - 3) - 3 + 3/3.
725 = 3^{(3+3)} - 3 - 3/3.
                                                          791 = 33 \times (3^3 - 3) - 3/3.
                                                                                                                    857 = 33 \times 3^3 - 33 - 3/3.
726 = 3^{(3+3)} - 3.
                                                                                                                    858 = 33 \times (3^3 - 3/3).
                                                          792 = 33 \times (3^3 - 3).
727 = 3^{(3+3)} - 3 + 3/3.
                                                          793 = 33 \times (3^3 - 3) + 3/3.
                                                                                                                    859 = 33 \times (3^3 - 3/3) + 3/3.
728 = 3^{(3+3)} - 3/3.
                                                          794 = 33 \times (3^3 - 3) + 3 - 3/3.
                                                                                                                    860 = (3+3/3) \times ((3+3)^3 - 3/3).
729 = 3^{(3+3)}.
                                                          795 = 33 \times (3^3 - 3) + 3.
                                                                                                                    861 = 33 \times (3^3 - 3/3) + 3.
730 = 3^{(3+3)} + 3/3.
                                                          796 = 3 + 33 \times (3^3 - 3) + 3/3.
                                                                                                                    862 = 33 \times (3^3 - 3/3) + 3 + 3/3.
731 = 3^{(3+3)} + 3 - 3/3.
                                                          797 = 33 \times (3^3 - 3) + 3 + 3 - 3/3.
                                                                                                                    863 = 33 \times 3^3 - 3^3 - 3/3.
732 = 3^{(3+3)} + 3.
                                                          798 = 33 \times (3^3 - 3) + 3 + 3.
                                                                                                                    864 = 3 \times 3 \times (3 \times 33 - 3).
733 = 3^{(3+3)} + 3 + 3/3.
                                                          799 = 3^3 \times (3^3 + 3) - 33/3.
                                                                                                                    865 = 3 \times 3 \times (3 \times 33 - 3) + 3/3.
734 = 3^{(3+3)} + 3 + 3 - 3/3.
                                                          800 = 3^{(3+3)} + ((3+3)^3 - 3)/3.
                                                                                                                    866 = 33 \times 3^3 - 3^3 + 3 - 3/3.
735 = 3^{(3+3)} + 3 + 3.
                                                          801 = 3 \times (3 \times 3 \times (3^3 + 3) - 3).
                                                                                                                    867 = 33 \times 3^3 - 3^3 + 3.
736 = 3^{(3+3)} + 3 + 3 + 3/3.
                                                          802 = 3^{(3+3)} + ((3+3)^3 + 3)/3.
                                                                                                                    868 = (3+3/3) \times ((3+3)^3 + 3/3).
                                                                                                                    869 = 33 \times (3^3 - 3/3) + 33/3.
737 = 3^{(3+3)} + 3 \times 3 - 3/3.
                                                          803 = 33 \times (3^3 - 3) + 33/3.
                                                          804 = 3^3 \times (3^3 + 3) - 3 - 3.
738 = 3^{(3+3)} + 3 \times 3.
                                                                                                                    870 = 3 \times 3 \times (3 \times 33 - 3) + 3 + 3.
                                                          805 = 3^{(3+3)} + 3 + ((3+3)^3 + 3)/3.
739 = 3^{(3+3)} + 3 \times 3 + 3/3.
                                                                                                                    871 = (3+3/3) \times ((3+3)^3 + 3/3) + 3.
740 = 3^{(3+3)} + 33/3.
                                                          806 = 3^3 \times (3^3 + 3) - 3 - 3/3.
                                                                                                                    872 = (3+3/3) \times ((3+3)^3 + 3 - 3/3).
741 = 3^{(3+3)} + 3 \times 3 + 3.
                                                          807 = 3^3 \times (3^3 + 3) - 3.
                                                                                                                    873 = 3 \times (3 \times (3 \times 33 - 3) + 3).
742 = 3^{(3+3)} + 3 \times 3 + 3 + 3/3.
                                                          808 = 3^3 \times (3^3 + 3) - 3 + 3/3.
                                                                                                                    874 = 3 \times (3 \times (3 \times 33 - 3) + 3) + 3/3.
743 = 3^{(3+3)} + 3 + 33/3.
                                                          809 = 3^3 \times (3^3 + 3) - 3/3.
                                                                                                                    875 = 3 \times 3 \times (3 \times 33 - 3) + 33/3.
744 = 3^{(3+3)} + 3 \times 3 + 3 + 3.
                                                          810 = 3^3 \times (3^3 + 3).
                                                                                                                    876 = (3 + 3/3) \times ((3 + 3)^3 + 3).
745 = 3^{(3+3)} + 3^3 - 33/3.
                                                          811 = 3^3 \times (3^3 + 3) + 3/3.
                                                                                                                    877 = 33 \times 3^3 - 3 - 33/3.
746 = 3^{(3+3)} + 3 + 3 + 33/3.
                                                          812 = 3^3 \times (3^3 + 3) + 3 - 3/3.
                                                                                                                    878 = 33 \times 3^3 - 3 - (33 - 3)/3.
                                                          813 = 3^3 \times (3^3 + 3) + 3.
                                                                                                                    879 = 33 \times 3^3 - 3 \times 3 - 3.
747 = 3 \times ((3+3)^3 + 33).
748 = 3 \times ((3+3)^3 + 33) + 3/3.
                                                          814 = 3^3 \times (3^3 + 3) + 3 + 3/3.
                                                                                                                    880 = 33 \times 3^3 - 33/3.
749 = 3^{(3+3)} + 3 \times 3 + 33/3.
                                                          815 = 3^3 \times (3^3 + 3) + 3 + 3 - 3/3.
                                                                                                                    881 = 33 \times 3^3 - (33 - 3)/3.
750 = 3^{(3+3)} + 3 \times (3+3) + 3.
                                                          816 = 3^3 \times (3^3 + 3) + 3 + 3.
                                                                                                                    882 = 3 \times (3 \times 3 \times 33 - 3).
751 = 3^{(3+3)} + 33 - 33/3.
                                                          817 = 3^3 \times (3^3 + 3) + 3 + 3 + 3/3.
                                                                                                                    883 = 33 \times 3^3 + 3 - 33/3.
```

 $884 = (3^3 - 3/3) \times (33 + 3/3).$ $923 = 33 + 33 \times 3^3 - 3/3$. $962 = 33 \times 3^3 + ((3+3)^3 - 3)/3.$ $885 = 33 \times 3^3 - 3 - 3$. $924 = 33 + 33 \times 3^3$. $963 = 3 \times (333 - 3 \times 3 - 3).$ $886 = 33 \times 3^3 - 3 - 3 + 3/3.$ $925 = 33 + 33 \times 3^3 + 3/3$. $964 = (3 \times 3 + 3/3)^3 - 33 - 3.$ $887 = 33 \times 3^3 - 3 - 3/3.$ $926 = 33 + 33 \times 3^3 + 3 - 3/3.$ $965 = 3 \times 333 - 33 - 3/3$. $888 = 33 \times 3^3 - 3$. $927 = 33 + 33 \times 3^3 + 3$. $966 = 3 \times 333 - 33$. $889 = 33 \times 3^3 - 3 + 3/3.$ $928 = 33 + 33 \times 3^3 + 3 + 3/3$. $967 = (3 \times 3 + 3/3)^3 - 33.$ $968 = (3 + 3/3) \times (3^{(3+3)} - 3)/3.$ $890 = 33 \times 3^3 - 3/3.$ $929 = 33 \times 3^3 + 3^3 + 33/3.$ $930 = 33 + 33 \times 3^3 + 3 + 3.$ $891 = 33 \times 3^3$. $969 = 3^3 \times (33 + 3) - 3.$ $892 = 33 \times 3^3 + 3/3$. $931 = 33 + 33 \times 3^3 + 3 + 3 + 3/3.$ $970 = 3^3 \times (33 + 3) - 3 + 3/3.$ $893 = 33 \times 3^3 + 3 - 3/3$. $971 = 3^3 \times (33 + 3) - 3/3.$ $932 = 3 \times 333 - 3 - (3 + 3/3)^3$. $894 = 33 \times 3^3 + 3$. $933 = 33 \times 3^3 + 33 + 3 \times 3$. $972 = 3^3 \times (33 + 3)$. $934 = 3^{(3+3)} + (3+3)^3 - 33/3.$ $895 = 33 \times 3^3 + 3 + 3/3$. $973 = 3^3 \times (33 + 3) + 3/3$. $896 = 33 \times 3^3 + 3 + 3 - 3/3.$ $935 = 3 \times 333 - (3 + 3/3)^3$. $974 = 3^3 \times (33 + 3) + 3 - 3/3.$ $897 = 33 \times 3^3 + 3 + 3.$ $936 = (3 \times 3 + 3) \times (3 \times 3^3 - 3).$ $975 = 3^3 \times (33 + 3) + 3.$ $898 = 33 \times 3^3 + 3 + 3 + 3/3.$ $976 = 3^3 \times (33 + 3) + 3 + 3/3.$ $937 = (3 \times 3 + 3) \times (3 \times 3^3 - 3) + 3/3.$ $977 = 3^3 \times (33 + 3) + 3 + 3 - 3/3.$ $899 = 3 \times 3 + 33 \times 3^3 - 3/3.$ $938 = 3 \times 333 + 3 - (3 + 3/3)^3$. $900 = 3 \times 3 + 33 \times 3^3$. $939 = 3^3 \times (33 + 3) - 33.$ $978 = 3^3 \times (33 + 3) + 3 + 3.$ $979 = 3 \times (333 - 3) - 33/3.$ $901 = 33 \times 3^3 + 3 \times 3 + 3/3.$ $940 = 3^3 \times (33 + 3) - 33 + 3/3.$ $941 = 3^{(3+3)} + (3+3)^3 - 3 - 3/3.$ $902 = 33 \times 3^3 + 33/3$. $980 = 3 \times (333 - 3 - 3) - 3/3.$ $903 = 33 \times 3^3 + 3 \times 3 + 3.$ $942 = 3^{(3+3)} + (3+3)^3 - 3.$ $981 = 3 \times (333 - 3 - 3).$ $904 = 33 \times 3^3 + 3 \times 3 + 3 + 3/3.$ $943 = 3^{(3+3)} + (3+3)^3 - 3 + 3/3.$ $982 = 3 \times (333 - 3 - 3) + 3/3.$ $905 = 33 \times 3^3 + 3 + 33/3.$ $944 = 3^{(3+3)} + (3+3)^3 - 3/3.$ $983 = 3^3 \times (33 + 3) + 33/3.$ $945 = 3^{(3+3)} + (3+3)^3.$ $906 = 33 \times 3^3 + 3 \times 3 + 3 + 3$. $984 = 3 \times (333 - 3 - 3) + 3.$ $946 = 3^{(3+3)} + (3+3)^3 + 3/3.$ $907 = 33 \times 3^3 + 3^3 - 33/3.$ $985 = 3 \times 333 - 3 - 33/3$. $947 = 3^{(3+3)} + (3+3)^3 + 3 - 3/3.$ $908 = 33 \times 3^3 + 3 + 3 + 33/3.$ $986 = 3 \times (333 - 3) - 3 - 3/3.$ $948 = 3^{(3+3)} + (3+3)^3 + 3.$ $909 = 3 \times (3 \times 3 \times 33 + 3 + 3).$ $987 = 3 \times (333 - 3) - 3$. $949 = 3^{(3+3)} + (3+3)^3 + 3 + 3/3.$ $910 = 33 \times 3^3 + 3 \times (3+3) + 3/3.$ $988 = 3 \times 333 - 33/3.$ $950 = 3^{(3+3)} + (3+3)^3 + 3 + 3 - 3/3.$ $911 = 33 \times 3^3 + 3 \times 3 + 33/3.$ $989 = 3 \times (333 - 3) - 3/3.$ $951 = 3^{(3+3)} + (3+3)^3 + 3 + 3.$ $912 = 3 \times (3 \times 3 \times 33 + 3 + 3) + 3.$ $990 = 3 \times (333 - 3).$ $991 = 3 \times (333 - 3) + 3/3.$ $913 = 33 \times 3^3 + 33 - 33/3.$ $952 = (3^3 + 3/3) \times (33 + 3/3).$ $914 = 33 \times 3^3 + 3^3 - 3 - 3/3.$ $953 = (3+3) \times ((3+3) \times 3^3 - 3) - 3/3.$ $992 = 3 \times (333 - 3) + 3 - 3/3.$ $915 = 33 \times 3^3 + 3^3 - 3.$ $993 = 3 \times (333 - 3) + 3.$ $954 = (3+3) \times ((3+3) \times 3^3 - 3).$ $916 = 33 \times 3^3 + 3^3 - 3 + 3/3.$ $955 = 33 \times 3^3 + (3 + 3/3)^3$. $994 = (3 \times 3 + 3/3)^3 - 3 - 3$. $956 = 3^{(3+3)} + (3+3)^3 + 33/3.$ $917 = 33 \times 3^3 + 3^3 - 3/3$. $995 = 3 \times 333 - 3 - 3/3$. $957 = 33 \times (3^3 + 3 - 3/3).$ $918 = 3 \times 3 \times (3 \times 33 + 3).$ $996 = 3 \times 333 - 3$. $919 = 33 \times 3^3 + 3^3 + 3/3.$ $958 = 3 + 33 \times 3^3 + (3 + 3/3)^3$ $997 = (3 \times 3 + 3/3)^3 - 3.$ $920 = 33 \times 3^3 + 3^3 + 3 - 3/3.$ $959 = (3 + 3^3) \times (33 - 3/3) - 3/3.$ $998 = 3 \times 333 - 3/3$. $921 = 33 \times 3^3 + 3^3 + 3.$ $960 = (3 + 3^3) \times (33 - 3/3).$ $999 = 3 \times 333$. $922 = 33 \times 3^3 + 3^3 + 3 + 3/3.$ $961 = (3^3 + 3 + 3/3)^{(3-3/3)}.$ $1000 = (3 \times 3 + 3/3)^3.$

7. Representations Using Number 4

101 = 4444/44. $124 = 4 \times 4 \times (4 + 4) - 4$. $147 = 4 \times (4 + 4) + 4 + 444/4$. 102 = (444 - 4)/4 - 4 - 4. $125 = 44 + (4 - 4/4)^4.$ $148 = 4 \times (4 \times (4 + 4) + 4) + 4.$ 103 = 444/4 - 4 - 4. $126 = 4 \times (4^4 - 4)/(4 + 4).$ $149 = 4^4 + 4 - 444/4$. $104 = 4 \times 4 + 44 + 44$. $127 = 4 \times 4 + 444/4$. $150 = 4 \times (44 + 4^4)/(4 + 4).$ 105 = 4 + 4444/44. $128 = 4 \times 4 \times (4 + 4)$. 151 = 44 - 4 + 444/4. 106 = (444 - 4)/4 - 4. $152 = 4 \times (44 - 4) - 4 - 4$. $129 = 4 \times 4 \times (4 + 4) + 4/4$. 107 = 444/4 - 4. $130 = 4 \times (4^4 + 4)/(4 + 4)$. $153 = 4^4 + 4 + 4 - 444/4.$ $108 = 44 + 4 \times 4 \times 4$. $131 = 4 \times 4 + 4 + 444/4$. 154 = 44 + (444 - 4)/4. $109 = 44 + (4^4 + 4)/4.$ $132 = 4 \times 4 \times (4+4) + 4.$ 155 = 44 + 444/4. $156 = 4 \times (44 - 4) - 4$. 110 = (444 - 4)/4. $133 = 4 \times 4 \times (4 + 4) + 4 + 4/4$. 111 = 444/4. $134 = 4 + 4 \times (4^4 + 4)/(4 + 4).$ $157 = 4 \times (44 - 4) - 4 + 4/4$. $135 = (4 - 4/4) \times (44 + 4/4).$ $112 = 4 \times (44 - 4 \times 4).$ $158 = 4 \times (44 - 4) - (4 + 4)/4.$ 113 = (444 + 4 + 4)/4. $136 = 4 \times 4 \times (4+4) + 4 + 4.$ $159 = 4 \times (44 - 4) - 4/4$. 114 = 4 + (444 - 4)/4. $160 = 4 \times (44 - 4)$. $137 = 4 \times 4 \times (4+4) + 4 + 4 + 4/4$. 115 = 4 + 444/4. $138 = 4 \times 4 \times (4+4) + (44-4)/4.$ $161 = 4 \times (44 - 4) + 4/4$. $116 = 4 + 4 \times (44 - 4 \times 4)$. $139 = 4 \times 4 \times (4+4) + 44/4.$ $162 = 4 \times (44 - 4) + (4 + 4)/4$. 117 = 4 + (444 + 4 + 4)/4. $140 = 4 \times (4 \times (4 + 4) + 4) - 4.$ $163 = 4 \times (44 - 4) + 4 - 4/4.$ 118 = 4 + 4 + (444 - 4)/4. $141 = 4^4 - 4 - 444/4.$ $164 = 4 \times (44 - 4) + 4$. 119 = 4 + 4 + 444/4. $142 = 4 \times (4 + 4) + (444 - 4)/4$. $165 = 4 \times 44 - 44/4$. $120 = (4+4) \times (44/4+4)$. $143 = 4 \times (4+4) + 444/4.$ $166 = 4 \times 44 - (44 - 4)/4$. $121 = (44/4)^{((4+4)/4)}.$ $167 = 4 \times 44 - 4 - 4 - 4/4$. $144 = 4 \times (4 \times (4 + 4) + 4).$ $145 = 4^4 - 444/4$. $168 = 4 \times 44 - 4 - 4$. 122 = (444 + 44)/4. 123 = 4 + 4 + 4 + 444/4. $146 = 4^4 + (4 - 444)/4.$ $169 = 4 \times 44 + 4 - 44/4.$

| $170 = 4 \times 44 - 4 - (4+4)/4.$ | $236 = 4^4 - 4 \times 4 - 4.$ | $302 = 4^4 + 44 + (4+4)/4$. |
|--|---|---|
| | | , , |
| $171 = 4 \times 44 - 4 - 4/4.$ | $237 = 4^4 - 4 \times 4 - 4 + 4/4.$ | $303 = 4^4 + 44 + 4 - 4/4.$ |
| $172 = 4 \times 44 - 4.$ | $238 = 4^4 - 4 \times 4 - (4+4)/4.$ | $304 = 4^4 + 44 + 4.$ |
| $173 = 4 \times 44 - 4 + 4/4.$ | $239 = 4^4 - 4 \times 4 - 4/4.$ | $305 = 4^4 + 44 + 4 + 4/4.$ |
| $174 = 4 \times 44 - (4+4)/4.$ | $240 = 4^4 - 4 \times 4$. | $306 = 4^4 + 44 + 4 + (4+4)/4$. |
| $175 = 4 \times 44 - 4/4$. | $241 = 4^4 - 4 \times 4 + 4/4.$ | $307 = 4^4 + 44 + 4 + 4 - 4/4$. |
| | • | $308 = 4^4 + 44 + 4 + 4.$ |
| $176 = 4 \times 44.$ | $242 = 44 \times 44/(4+4).$ | |
| $177 = 4 \times 44 + 4/4.$ | $243 = (4 - 4/4)^{(4+4/4)}.$ | $309 = 4^4 + (4^4 - 44)/4.$ |
| $178 = 4 \times 44 + (4+4)/4.$ | $244 = 4^4 - 4 \times 4 + 4.$ | $310 = 4^4 + 44 + (44 - 4)/4.$ |
| $179 = 4 \times 44 + 4 - 4/4$. | $245 = 4^4 - 44/4$. | $311 = 4^4 + 44 + 44/4$. |
| $180 = 4 \times 44 + 4$. | $246 = 4^4 - (44 - 4)/4$. | $312 = 4^4 + 44 + 4 + 4 + 4$ |
| $181 = 4 \times 44 + 4 + 4/4$. | $247 = 4^4 - 4 - 4 - 4/4.$ | $313 = 4 + 4^4 + (4^4 - 44)/4$. |
| $182 = 4 \times 44 + 4 + (4 + 4)/4.$ | $248 = 4^4 - 4 - 4.$ | , |
| \ /: | | $314 = 4^4 - 4 + (4^4 - 4 - 4)/4.$ |
| $183 = 4 \times 44 + 4 + 4 - 4/4.$ | $249 = 4^4 + 4 - 44/4.$ | $315 = 4^4 - 4 + (4^4 - 4)/4.$ |
| $184 = 4 \times 44 + 4 + 4.$ | $250 = 4^4 - 4 - (4+4)/4.$ | $316 = 4^4 + 44 + 4 \times 4.$ |
| $185 = 4 \times 44 + 4 + 4 + 4/4$. | $251 = 4^4 - 4 - 4/4.$ | $317 = 4^4 - 4 + (4^4 + 4)/4$. |
| $186 = 4 \times 44 + (44 - 4)/4$. | $252 = 4^4 - 4$. | $318 = 4^4 + (4^4 - 4 - 4)/4$. |
| $187 = 4 \times 44 + 44/4$. | $253 = 4^4 - 4 + 4/4.$ | $319 = 4^4 + (4^4 - 4)/4.$ |
| | $254 = 4^4 - (4+4)/4.$ | $320 = 4 \times 4 \times (4 \times 4 + 4).$ |
| $188 = 444 - 4^4.$ | , , | |
| $189 = 444 - 4^4 + 4/4.$ | $255 = 4^4 - 4/4.$ | $321 = 4^4 + (4^4 + 4)/4.$ |
| $190 = 4^4 - (4^4 + 4 + 4)/4.$ | $256 = 4^4$. | $322 = 4^4 + (4^4 + 4 + 4)/4.$ |
| $191 = 4^4 - (4^4 + 4)/4.$ | $257 = 4^4 + 4/4$. | $323 = 4^4 + 4 + (4^4 - 4)/4$. |
| $192 = 4 \times (44 + 4)$. | $258 = 4^4 + (4+4)/4$. | $324 = 4 \times (4 - 4/4)^4$ |
| $193 = 4 \times (44 + 4) + 4/4.$ | $259 = 4^4 + 4 - 4/4.$ | $325 = 4^4 + 4 + (4^4 + 4)/4$. |
| $194 = 4^4 - (4^4 - 4 - 4)/4.$ | • | $326 = 4^4 + 4 + (4^4 + 4 + 4)/4.$ |
| | $260 = 4^4 + 4.$ | |
| $195 = 4^4 + 4 - (4^4 + 4)/4.$ | $261 = 4^4 + 4 + 4/4.$ | $327 = 4^4 + 4 + 4 + (4^4 - 4)/4.$ |
| $196 = 4 \times (44 + 4) + 4.$ | $262 = 4^4 + 4 + (4+4)/4.$ | $328 = 4 + 4 \times (4 - 4/4)^4.$ |
| $197 = 4^4 + 4 - (4^4 - 4)/4.$ | $263 = 4^4 + 4 + 4 - 4/4$. | $329 = 4^4 + 4 + 4 + (4^4 + 4)/4$. |
| $198 = 4^4 + 4 - (4^4 - 4 - 4)/4.$ | $264 = 4^4 + 4 + 4$. | $330 = 4^4 + (4^4 + 44 - 4)/4$. |
| $199 = 4^4 + 4 + 4 - (4^4 + 4)/4.$ | $265 = 4^4 + 4 + 4 + 4/4.$ | $331 = 4^4 + (44 + 4^4)/4.$ |
| | | |
| $200 = 4 \times (44 + 4) + 4 + 4.$ | $266 = 4^4 + (44 - 4)/4.$ | $332 = 4 + 4 + 4 \times (4 - 4/4)^4.$ |
| $201 = 4^4 - 44 - 44/4.$ | $267 = 4^4 + 44/4.$ | $333 = 4^4 - 4 + (4 - 4/4)^4.$ |
| $202 = 4^4 - 44 + (44 - 4)/4.$ | $268 = 4^4 + 4 + 4 + 4.$ | 334 = 444 - (444 - 4)/4. |
| $203 = 4^4 - (4^4 - 44)/4$. | $269 = 4^4 + 4 + 4 + 4 + 4/4.$ | $335 = 4^4 + 4 + (44 + 4^4)/4$. |
| $204 = 44 + 4 \times (44 - 4)$. | $270 = 4^4 + 4 + (44 - 4)/4$. | $336 = 4 \times (4 \times (4 \times 4 + 4) + 4).$ |
| $205 = ((4+4)^4 + 4)/(4 \times 4 + 4).$ | $271 = 4^4 + 4 + 44/4.$ | $337 = 4^4 + (4 - 4/4)^4$. |
| $206 = 4^4 - 4 - 44 - (4+4)/4.$ | $272 = 4^4 + 4 \times 4.$ | $338 = 4^4 + (4 - 4/4)^4 + 4/4.$ |
| | | |
| $207 = 4^4 - 4 - 44 - 4/4.$ | $273 = 4^4 + 4 \times 4 + 4/4.$ | $339 = 4 \times ((4 - 4/4)^4 + 4) - 4/4.$ |
| $208 = 4 \times (44 + 4 + 4).$ | $274 = 4^4 + 4 \times 4 + (4+4)/4.$ | $340 = 4 \times ((4 - 4/4)^4 + 4).$ |
| $209 = 4 \times (44 + 4 + 4) + 4/4.$ | $275 = 4^4 + 4 + 4 + 44/4.$ | $341 = 4^4 + 4 + (4 - 4/4)^4.$ |
| $210 = 4^4 - 44 - (4 + 4)/4$. | $276 = 4^4 + 4 \times 4 + 4$. | $342 = 44 \times (4+4) - (44-4)/4$. |
| $211 = 4^4 - 44 - 4/4$. | $277 = 4^4 + 4 \times 4 + 4 + 4/4$. | $343 = (4 + 4 - 4/4)^{(4-4/4)}.$ |
| $212 = 4^4 - 44.$ | $278 = 4^4 + 4 \times 44/(4+4).$ | $344 = 4^4 + 44 + 44.$ |
| $212 - 4 - 44.$ $213 = 4^4 - 44 + 4/4.$ | $270 = 4^{4} + 4 + 4 + 4 + 44/4.$ $279 = 4^{4} + 4 + 4 + 4 + 44/4.$ | $345 = 4^4 + 44 + 44 + 4/4$. |
| | | |
| $214 = 4^4 - 44 + (4+4)/4.$ | $280 = 4^4 + 4 \times 4 + 4 + 4.$ | $346 = 44 \times (4+4) - 4 - (4+4)/4.$ |
| $215 = 4^4 + 4 - 44 - 4/4.$ | $281 = 4^4 + 4 \times 4 + 4 + 4 + 4/4.$ | $347 = 44 \times (4+4) - 4 - 4/4.$ |
| $216 = 4^4 + 4 - 44.$ | $282 = 4^4 + 4 + 4 \times 44/(4 + 4)$. | $348 = 44 \times (4 + 4) - 4$. |
| $217 = 4^4 + 4 - 44 + 4/4.$ | $283 = 4 \times 4 + 4^4 + 44/4$. | $349 = 44 \times (4+4) - 4 + 4/4.$ |
| $218 = 4 \times 444/(4+4) - 4.$ | $284 = 44 + 4^4 - 4 \times 4$. | $350 = 44 \times (4+4) - (4+4)/4.$ |
| $219 = 44 + 4 \times 44 - 4/4.$ | $285 = 44 + 4^4 - 4 \times 4 - 4/4.$ | $351 = 44 \times (4+4) - 4/4.$ |
| • | · · · · · · · · · · · · · · · · · · · | |
| $220 = 44 + 4 \times 44.$ | $286 = 44 + 44 \times 44/(4+4).$ | $352 = 44 \times (4 + 4).$ |
| $221 = 44 + 4 \times 44 + 4/4.$ | $287 = 4^4 + 4 \times (4+4) - 4/4.$ | $353 = 44 \times (4+4) + 4/4.$ |
| $222 = 4 \times 444/(4+4)$. | $288 = 4^4 + 4 \times (4 + 4).$ | $354 = 44 \times (4+4) + (4+4)/4$. |
| $223 = 4^4 - 44 + 44/4$. | $289 = 44 + 4^4 - 44/4$. | $355 = 44 \times (4+4) + 4 - 4/4$. |
| $224 = 4^4 - 4 \times (4 + 4)$. | $290 = 44 + 4^4 - (44 - 4)/4.$ | $356 = 44 \times (4+4) + 4$. |
| $225 = 4^4 - 4 \times (4 + 4) + 4/4.$ | $291 = 4 \times (4+4) + 4^4 + 4 - 4/4.$ | $357 = 44 \times (4+4) + 4 + 4/4.$ |
| | | |
| $226 = 4 + 4 \times 444/(4+4).$ | $292 = 4 \times (4+4) + 4^4 + 4.$ | $358 = 44 \times (4+4) + 4 + (4+4)/4.$ |
| $227 = 4^4 + 4 - 44 + 44/4.$ | $293 = 4 \times (4+4) + 4^4 + 4 + 4/4.$ | $359 = 44 \times (4+4) + 4 + 4 - 4/4.$ |
| $228 = 4^4 + 4 - 4 \times (4 + 4).$ | $294 = 44 + 4^4 - 4 - (4+4)/4.$ | $360 = 44 \times (4+4) + 4 + 4.$ |
| $229 = 4^4 - 4 \times 4 - 44/4$ | $295 = 44 + 4^4 - 4 - 4/4.$ | $361 = 44 \times (4+4) + 4 + 4 + 4/4.$ |
| $230 = 4 + 4 + 4 \times 444/(4 + 4).$ | $296 = 44 + 4^4 - 4.$ | $362 = 4^4 - 4 + (444 - 4)/4.$ |
| $231 = 44 + 4 \times 44 + 44/4.$ | $297 = 44 + 4^4 - 4 + 4/4.$ | $363 = 4^4 - 4 + 444/4.$ |
| $231 = 44 + 4 \times 44 + 44/4.$ $232 = 4^4 - 4 \times 4 - 4 - 4.$ | $297 = 44 + 4 - 4 + 4/4.$ $298 = 44 + 4^4 - (4 + 4)/4.$ | |
| | | $364 = 44 \times (4+4) + 4 + 4 + 4.$ |
| $233 = 4 + 4^4 - 4 \times 4 - 44/4.$ | $299 = 44 + 4^4 - 4/4.$ | $365 = (4 + 4/4)^4 - 4^4 - 4.$ |
| $234 = 4^4 - 4 \times 44/(4+4).$ | $300 = 44 + 4^4.$ | $366 = 4^4 + (444 - 4)/4.$ |
| $235 = 4^4 - 4 - 4 \times 4 - 4/4.$ | $301 = 4^4 + 44 + 4/4.$ | $367 = 4^4 + 444/4$. |
| | | |

```
368 = 4 \times (44 + 44 + 4).
                                                    434 = 444 - (44 - 4)/4.
                                                                                                         500 = 4^4 + 4^4 - 4 \times 4 + 4.
369 = (4 + 4/4)^4 - 4^4.
                                                    435 = 444 - 4 - 4 - 4/4.
                                                                                                         501 = 4^4 + 4^4 - 44/4.
                                                                                                         502 = 4^4 + 4^4 - (44 - 4)/4.
370 = 4^4 + 4 + (444 - 4)/4.
                                                    436 = 444 - 4 - 4.
371 = 4^4 + 4 + 444/4.
                                                                                                         503 = ((4+4) \times (4^4-4) - 4)/4.
                                                    437 = 444 + 4 - 44/4.
                                                                                                         504 = 4^4 + 4^4 - 4 - 4.
372 = 44 \times (4 + 4) + 4 \times 4 + 4.
                                                    438 = 444 - 4 - (4 + 4)/4.
373 = (4 + 4/4)^4 + 4 - 4^4.
                                                    439 = 444 - 4 - 4/4.
                                                                                                         505 = ((4+4) \times (4^4-4) + 4)/4.
                                                                                                         506 = 4^4 + 4^4 - 4 - (4 + 4)/4.
374 = 44 \times (4 \times 4 \times 4 + 4)/(4 + 4).
                                                    440 = 444 - 4.
375 = 4^4 + 4 + 4 + 444/4.
                                                                                                         507 = 4^4 + 4^4 - 4 - 4/4.
                                                    441 = 444 - 4 + 4/4.
                                                                                                         508 = 4^4 + 4^4 - 4.
376 = (4+4) \times (44+4-4/4).
                                                    442 = 444 - (4 + 4)/4.
377 = (4 + 4/4)^4 - 4^4 + 4 + 4.
                                                    443 = 444 - 4/4.
                                                                                                         509 = 4^4 + 4^4 - 4 + 4/4.
                                                                                                         510 = 4^4 + 4^4 - (4+4)/4.
378 = 4^4 + (444 + 44)/4.
                                                    444 = 444.
                                                                                                         511 = 4^4 + 4^4 - 4/4.
379 = 444 - (4^4 + 4)/4.
                                                    445 = 444 + 4/4.
380 = 444 - 4 \times 4 \times 4.
                                                                                                         512 = 4^4 + 4^4
                                                    446 = 444 + (4 + 4)/4.
381 = 444 + (4 - 4^4)/4.
                                                                                                         513 = 4^4 + 4^4 + 4/4.
                                                    447 = 444 + 4 - 4/4.
                                                                                                         514 = 4^4 + 4^4 + (4+4)/4.
382 = 4^4 + 4 \times (4^4 - 4)/(4 + 4).
                                                    448 = 444 + 4.
                                                                                                         515 = 4^4 + 4^4 + 4 - 4/4.
383 = (4+4) \times (44+4) - 4/4.
                                                    449 = 444 + 4 + 4/4.
                                                                                                         516 = 4^4 + 4^4 + 4.
384 = (4+4) \times (44+4).
                                                    450 = 444 + 4 + (4 + 4)/4.
                                                    451 = 444 + 4 + 4 - 4/4.
385 = (4+4) \times (44+4) + 4/4.
                                                                                                         517 = 4^4 + 4^4 + 4 + 4/4.
                                                                                                         518 = 4^4 + 4^4 + 4 + (4+4)/4.
386 = 4^4 + 4 \times (4^4 + 4)/(4 + 4).
                                                    452 = 444 + 4 + 4.
                                                                                                         519 = ((4+4) \times (4^4+4) - 4)/4.
387 = (4+4) \times (44+4) + 4 - 4/4.
                                                    453 = 444 + 4 + 4 + 4/4.
                                                                                                         520 = 4^4 + 4^4 + 4 + 4.
388 = (4+4) \times (44+4) + 4.
                                                    454 = 444 + (44 - 4)/4
389 = (4+4) \times (44+4) + 4 + 4/4.
                                                    455 = 444 + 44/4.
                                                                                                         521 = ((4+4) \times (4^4+4) + 4)/4.
390 = (4 + (4 + 4)/4) \times (4^4 + 4)/4.
                                                    456 = 444 + 4 + 4 + 4.
                                                                                                         522 = 4^4 + 4^4 + (44 - 4)/4.
                                                                                                         523 = 4^4 + 4^4 + 44/4.
391 = 444 - (4^4 - 44)/4.
                                                    457 = 444 + 4 + 4 + 4 + 4/4.
392 = (4+4) \times (44+4) + 4 + 4.
                                                    458 = 444 + 4 + (44 - 4)/4.
                                                                                                         524 = 44 \times (4 + 4 + 4) - 4.
                                                    459 = 444 + 4 + 44/4.
                                                                                                         525 = 444 + (4 - 4/4)^4.
393 = (4+4) \times (44+4) + 4 + 4 + 4/4.
                                                    460 = 444 + 4 \times 4.
394 = (4 + (4 + 4)/4) \times (4^4 + 4)/4 + 4.
                                                                                                         526 = 44 \times (4 + 4 + 4) - (4 + 4)/4.
                                                    461 = 444 + 4 \times 4 + 4/4.
395 = 44 \times (4 + 4) + 44 - 4/4.
                                                                                                         527 = 44 \times (4 + 4 + 4) - 4/4.
                                                    462 = 444 + 4 \times 4 + (4 + 4)/4.
396 = 44 \times (4+4) + 44.
                                                                                                         528 = 44 \times (4 + 4 + 4).
397 = 44 \times (4 + 4) + 44 + 4/4.
                                                    463 = 444 + 4 + 4 + 44/4.
                                                                                                         529 = 44 \times (4 + 4 + 4) + 4/4.
398 = 444 + 44 - (4 + 4)/4.
                                                    464 = 444 + 4 \times 4 + 4.
                                                                                                         530 = 44 \times (4 + 4 + 4) + (4 + 4)/4.
399 = 4 \times 4^4 - (4 + 4/4)^4.
                                                    465 = 444 + 4 \times 4 + 4 + 4/4.
                                                                                                         531 = 44 \times (4 + 4 + 4) + 4 - 4/4.
400 = 444 - 44.
                                                    466 = 444 + 4 \times 44/(4 + 4).
                                                                                                         532 = 44 \times (4 + 4 + 4) + 4.
401 = 444 - 44 + 4/4.
                                                    467 = 4^4 + 4^4 - 44 - 4/4.
                                                                                                         533 = 44 \times (4 + 4 + 4) + 4 + 4/4.
402 = 444 - 44 + (4 + 4)/4.
                                                    468 = 4^4 + 4^4 - 44.
                                                                                                         534 = (4+4) \times (4^4 + 44/4)/4.
                                                    469 = 4^4 + 4^4 - 44 + 4/4.
403 = 4 \times 4^4 + 4 - (4 + 4/4)^4.
                                                                                                         535 = (4 + 4/4) \times (444/4 - 4).
404 = 444 - 44 + 4.
                                                    470 = 444 + 4 + 4 \times 44/(4 + 4).
                                                                                                         536 = 44 \times (4 + 4 + 4) + 4 + 4.
                                                                                                         537 = (4 + 4/4)^4 - 44 - 44.
405 = (4 + 4/4) \times (4 - 4/4)^4.
                                                    471 = 444 + 4 \times 4 + 44/4.
406 = 444 - 44 + 4 + (4 + 4)/4.
                                                    472 = 4^4 + 4^4 + 4 - 44.
                                                                                                         538 = (4+4) \times (4^4 + 44/4)/4 + 4.
407 = 4 \times 4^4 + 4 + 4 - (4 + 4/4)^4.
                                                    473 = 44 \times (44 - 4/4)/4.
                                                                                                         539 = 44 \times (4 + 4 + 4) + 44/4.
408 = 444 - 44 + 4 + 4.
                                                    474 = (44 \times (44 - 4/4) + 4)/4.
                                                                                                         540 = (4 - 4/4) \times (4 \times 44 + 4).
409 = (4 + 4/4) \times (4 - 4/4)^4 + 4.
                                                    475 = 444 + 4 \times (4 + 4) - 4/4.
                                                                                                         541 = (4 + 4/4)^4 + 4 - 44 - 44
410 = 4 \times ((4+4)^4 + 4)/(44 - 4).
                                                    476 = 444 + 4 \times (4 + 4).
                                                                                                         542 = (4 + 4) \times (4^4 + 4 + 44/4)/4.
411 = 4^4 + 44 + 444/4.
                                                    477 = 4 + 44 \times (44 - 4/4)/4.
                                                                                                         543 = (4+4) \times (4 \times (4 \times 4) + 4) - 4/4.
412 = 444 - 4 \times (4 + 4).
                                                    478 = 4^4 + 4 \times 444/(4+4).
                                                                                                         544 = (4 + 4) \times (4 \times (4 \times 4) + 4).
413 = 44 - 4^4 + (4 + 4/4)^4.
                                                    479 = (44 \times 44 - 4)/4 - 4.
                                                                                                         545 = (4+4) \times (4 \times (4 \times 4) + 4) + 4/4.
414 = 4 \times ((4+4)^4 + 4)/(44 - 4) + 4.
                                                    480 = (4 + 4) \times (4 \times 4 + 44).
                                                                                                         546 = (44 \times 44 + 4^4 - 4 - 4)/4.
                                                                                                         547 = (44 \times 44 + 4^4 - 4)/4.
415 = 4^4 + 4 \times (44 - 4) - 4/4.
                                                    481 = (44 \times 44 + 4)/4 - 4.
416 = 4^4 + 4 \times (44 - 4).
                                                    482 = (44 \times 44 - 4 - 4)/4.
                                                                                                         548 = (44 \times 44 + 4^4)/4.
417 = 4^4 + 4 \times (44 - 4) + 4/4.
                                                                                                         549 = (44 \times 44 + 4^4 + 4)/4.
                                                    483 = (44 \times 44 - 4)/4.
418 = 4^4 + 4 \times (44 - 4) + (4 + 4)/4.
                                                    484 = 44 \times 44/4.
                                                                                                         550 = (4 + 4/4) \times (444 - 4)/4.
419 = (44 \times 44 - 4^4 - 4)/4.
                                                    485 = (44 \times 44 + 4)/4.
                                                                                                         551 = 444 - 4 + 444/4.
420 = 4^4 + 4 + 4 \times (44 - 4).
                                                                                                         552 = 4^4 + 4^4 + 44 - 4.
                                                    486 = (44 \times 44 + 4 + 4)/4.
421 = 4^4 + 4 \times 44 - 44/4.
                                                    487 = 4 + (44 \times 44 - 4)/4.
                                                                                                         553 = 444 + (444 - 4 - 4)/4.
422 = 444 - 4 \times 44/(4 + 4).
                                                    488 = 44 + 444.
                                                                                                         554 = 444 + (444 - 4)/4.
                                                                                                         555 = 444 + 444/4.
423 = 444 - 4 \times 4 - 4 - 4/4.
                                                    489 = 4 + (44 \times 44 + 4)/4.
424 = 444 - 4 \times 4 - 4.
                                                                                                         556 = 4^4 + 4^4 + 44.
                                                    490 = 4 + (44 \times 44 + 4 + 4)/4.
425 = 444 - 4 \times 4 - 4 + 4/4.
                                                                                                         557 = 4^4 + 4^4 + 44 + 4/4.
                                                    491 = 4 + 4 + (44 \times 44 - 4)/4.
                                                    492 = 444 + 44 + 4.
426 = 444 - 4 \times 4 - (4 + 4)/4.
                                                                                                         558 = 444 + 4 + (444 - 4)/4.
427 = 444 - 4 \times 4 - 4/4.
                                                    493 = 4 + 4 + (44 \times 44 + 4)/4.
                                                                                                         559 = 444 + 4 + 444/4.
428 = 444 - 4 \times 4.
                                                    494 = (44 \times 44 + 44 - 4)/4.
                                                                                                         560 = 4^4 + 4^4 + 44 + 4.
429 = 444 - 4 \times 4 + 4/4.
                                                    495 = 44 \times (44 + 4/4)/4.
                                                                                                         561 = (4 + 4/4)^4 - 4 \times 4 \times 4.
430 = 4^4 + 4 \times 44 - (4 + 4)/4.
                                                    496 = 4^4 + 4^4 - 4 \times 4.
                                                                                                         562 = (4 + 4/4)^4 - (4^4 - 4)/4.
431 = 4^4 + 4 \times 44 - 4/4.
                                                    497 = 4^4 + 4^4 - 4 \times 4 + 4/4.
                                                                                                         563 = (4^4 \times 44 - 4)/(4 \times 4 + 4).
432 = 4^4 + 4 \times 44.
                                                    498 = 4^4 + 44 \times 44/(4+4).
                                                                                                         564 = 4 \times (4^4 - 4) - 444.
433 = 444 - 44/4.
                                                    499 = 4 + 44 \times (44 + 4/4)/4.
                                                                                                         565 = (4 + 4/4)^4 + 4 - 4 \times 4 \times 4.
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566 = (4 + 4/4)^4 + 4 - (4^4 - 4)/4.
                                                        632 = 4 \times 4 \times (44 - 4) - 4 - 4.
                                                                                                                  698 = 4^4 + 444 - (4+4)/4
567 = (4 + 4 + 4/4) \times (4^4 - 4)/4.
                                                        633 = (4 + 4/4)^4 + 4 + 4.
                                                                                                                  699 = 4^4 + 444 - 4/4.
568 = 4 \times (4^4 - 4) + 4 - 444.
                                                        634 = (4 + 4/4)^4 + 4 + 4 + 4/4.
                                                                                                                  700 = 4^4 + 444.
569 = (4+4/4)^4 + 4 + 4 - 4 \times 4 \times 4.
                                                        635 = (4 + 4/4)^4 + (44 - 4)/4.
                                                                                                                  701 = 444 + 4^4 + 4/4.
570 = 444 + 4 \times (4^4 - 4)/(4 + 4).
                                                                                                                  702 = 4 \times 4 \times 44 - (4 + 4)/4.
                                                        636 = 4 \times 4 \times (44 - 4) - 4.
571 = (44 \times (44 + 4 + 4) - 4)/4.
                                                        637 = (4 + 4/4)^4 + 4 + 4 + 4.
                                                                                                                 703 = 4 \times 4 \times 44 - 4/4.
                                                                                                                  704 = 4 \times 4 \times 44.
572 = 44 \times (4 + 4 + 4) + 44.
                                                        638 = 4 \times 4 \times (44 - 4) - (4 + 4)/4.
573 = (4 + 4/4)^4 - 44 - 4 - 4.
                                                        639 = 4 \times 4 \times (44 - 4) - 4/4.
                                                                                                                  705 = 4 \times 4 \times 44 + 4/4.
574 = 4^4 + 4^4 + (4^4 - 4 - 4)/4.
                                                        640 = 4 \times 4 \times (44 - 4).
                                                                                                                  706 = 4 \times 4 \times 44 + (4 + 4)/4.
575 = 4^4 + 4^4 + (4^4 - 4)/4.
                                                        641 = 4 \times 4 + (4 + 4/4)^4
                                                                                                                  707 = 4 \times 4 \times 44 + 4 - 4/4.
576 = 4 \times 4 \times (4 \times (4+4)+4).
                                                                                                                  708 = 4 \times 4 \times 44 + 4.
                                                        642 = 4 \times 4 + (4 + 4/4)^4 + 4/4.
577 = (4 + 4/4)^4 - 44 - 4.
                                                        643 = 4 \times 4 \times (44 - 4) + 4 - 4/4.
                                                                                                                  709 = 4 \times 4 \times 44 + 4 + 4/4.
578 = (4 + 4/4)^4 - 44 - 4 + 4/4.
                                                        644 = 4 \times 4 \times (44 - 4) + 4.
                                                                                                                 710 = 4 \times 4 \times 44 + 4 + (4 + 4)/4.
579 = 4 \times 4^4 - 444 - 4/4.
                                                        645 = 4 \times 4 + (4 + 4/4)^4 + 4.
                                                                                                                 711 = 4 \times 4 \times 44 + 4 + 4 - 4/4.
580 = 4 \times 4^4 - 444.
                                                        646 = 4 \times 4 + (4 + 4/4)^4 + 4 + 4/4.
                                                                                                                 712 = 4 \times 4 \times 44 + 4 + 4.
                                                        647 = (4+4) \times (4-4/4)^4 - 4/4.
581 = (4 + 4/4)^4 - 44.
                                                                                                                 713 = 4 \times 4 \times 44 + 4 + 4 + 4/4.
582 = (4 + 4/4)^4 - 44 + 4/4.
                                                        648 = (4+4) \times (4-4/4)^4.
                                                                                                                 714 = 4 \times 4 \times 44 + (44 - 4)/4.
583 = 44 \times (4^4 - 44)/(4 \times 4).
                                                        649 = 4 \times 4 + (4 + 4/4)^4 + 4 + 4.
                                                                                                                 715 = 4 \times 4 \times 44 + 44/4.
584 = 4 \times 4^4 - 444 + 4.
                                                                                                                 716 = 4 \times (4 \times 44 + 4) - 4.
                                                        650 = (44 - 4) \times (4^4 + 4)/(4 \times 4).
585 = (4 + 4/4)^4 - 44 + 4.
                                                        651 = 4 \times 4 \times (44 - 4) + 44/4.
                                                                                                                 717 = 4 \times (4 \times 44 + 4) - 4 + 4/4.
586 = (4 + 4/4)^4 - 44 + 4 + 4/4.
                                                        652 = (4+4) \times (4-4/4)^4 + 4.
                                                                                                                 718 = 4 \times (4 \times 44 + 4) - (4 + 4)/4.
587 = 44 \times (4^4 - 44)/(4 \times 4) + 4.
                                                        653 = (4 + 4/4)^4 + 44 - 4 \times 4.
                                                                                                                 719 = 4 \times (4 \times 44 + 4) - 4/4.
588 = 4 \times 4^4 - 444 + 4 + 4.
                                                        654 = (44 - 4) \times (4^4 + 4)/(4 \times 4) + 4.
                                                                                                                 720 = 4 \times (4 \times 44 + 4).
589 = (4 + 4/4)^4 - 44 + 4 + 4.
                                                        655 = 4 \times (4 \times (44 - 4) + 4) - 4/4.
                                                                                                                 721 = 4 \times (4 \times 44 + 4) + 4/4.
590 = (44 - 4) \times ((4^4 - 4)/4 - 4)/4.
                                                        656 = 4 \times (4 \times (44 - 4) + 4).
                                                                                                                 722 = 4 \times (4 \times 44 + 4) + (4 + 4)/4.
591 = 4 \times 4^4 - 444 + 44/4.
                                                        657 = 4 \times (4+4) + (4+4/4)^4.
                                                                                                                  723 = 4 \times (4 \times 44 + 4) + 4 - 4/4.
                                                        658 = (4 + 4/4)^4 + 44 - 44/4.
592 = 4 \times (4 \times (4 \times (4 + 4) + 4) + 4).
                                                                                                                 724 = 4 \times (4 \times 44 + 4) + 4.
593 = (4 + 4/4)^4 - 4 \times (4 + 4).
                                                                                                                  725 = 4 \times (4 \times 44 + 4) + 4 + 4/4.
                                                        659 = 4 \times 4 \times 44 - 44 - 4/4.
594 = (4+4/4)^4 - 4 \times (4+4) + 4/4.
                                                        660 = 4 \times 4 \times 44 - 44.
                                                                                                                  726 = 44 \times (4^4 + 4 + 4)/(4 \times 4).
595 = (44 \times 44 + 444)/4.
                                                        661 = 4 \times (4+4) + 4 + (4+4/4)^4.
                                                                                                                  727 = 4 \times (4 \times 44 + 4) + 4 + 4 - 4/4.
596 = 4 \times (4^4 + 4) - 444.
                                                        662 = 44 \times (4 + 44/4) + (4 + 4)/4.
                                                                                                                  728 = 4 \times (4 \times 44 + 4) + 4 + 4.
597 = (4 + 4/4)^4 + 4 - 4 \times (4 + 4).
                                                        663 = 4 \times 4 \times 44 + 4 - 44 - 4/4.
                                                                                                                  729 = (4 - 4/4)^{(4 + (4+4)/4)}.
                                                                                                                  730 = 44 \times (4^4 + 4 + 4)/(4 \times 4) + 4.
598 = (4+4) \times (44+4^4-4/4)/4.
                                                        664 = 44 \times (4 + 44/4) + 4.
599 = ((4+4) \times (44+4^4) - 4)/4.
                                                        665 = (4 + 4/4)^4 + 44 - 4.
                                                                                                                  731 = 4 \times (4 \times 44 + 4) + 44/4.
600 = (4+4) \times (44+4^4)/4.
                                                        666 = 444 \times (4 + (4 + 4)/4)/4.
                                                                                                                 732 = 44 + 4 \times (4 \times 44 - 4).
                                                                                                                 733 = (4 - 4/4)^{(4+(4+4)/4)} + 4.
601 = (4 + 4/4)^4 - 4 \times 4 - 4 - 4.
                                                        667 = 4444/4 - 444.
602 = (4+4) \times (44+4^4+4/4)/4.
                                                                                                                 734 = (4+4) \times (4^4 + 444/4)/4.
                                                        668 = 4 \times (4 \times 44 - 4 - 4) - 4.
                                                                                                                 735 = (4 - 4/4) \times (4^4 - 44/4).
603 = 4 + ((4+4) \times (44+4^4) - 4)/4.
                                                        669 = 44 + (4 + 4/4)^4.
604 = 4^4 + (4+4) \times 44 - 4.
                                                        670 = 44 + (4 + 4/4)^4 + 4/4.
                                                                                                                 736 = 4 \times (4 \times 44 + 4 + 4).
605 = (4 + 4/4)^4 - 4 \times 4 - 4.
                                                        671 = 4 \times (4 \times 44 - 4 - 4) - 4/4.
                                                                                                                 737 = 4 \times (4 \times 44 + 4 + 4) + 4/4.
606 = (4 + 4/4)^4 - 4 \times 4 - 4 + 4/4.
                                                        672 = 4 \times (4 \times 44 - 4 - 4).
                                                                                                                 738 = 4^4 + (44 \times 44 - 4 - 4)/4.
607 = 4^4 + (4+4) \times 44 - 4/4.
                                                        673 = 44 + 4 + (4 + 4/4)^4.
                                                                                                                 739 = 4^4 + (44 \times 44 - 4)/4.
608 = 4^4 + (4 + 4) \times 44.
                                                        674 = 44 + 4 + (4 + 4/4)^4 + 4/4.
                                                                                                                  740 = 4 \times (4 \times 44 + 4 + 4) + 4.
609 = (4 + 4/4)^4 - 4 \times 4.
                                                        675 = (4 + 44/4) \times (44 + 4/4).
                                                                                                                 741 = 4^4 + (44 \times 44 + 4)/4.
610 = (4 + 4/4)^4 - 4 \times 4 + 4/4.
                                                        676 = 4 + 4 \times (4 \times 44 - 4 - 4).
                                                                                                                 742 = 4^4 + (44 \times 44 + 4 + 4)/4.
611 = (4+4) \times 44 + 4^4 + 4 - 4/4.
                                                        677 = 4 + 4 \times (4 \times 44 - 4 - 4) + 4/4.
                                                                                                                 743 = 4^4 + 4 + (44 \times 44 - 4)/4.
612 = (4+4) \times 44 + 4^4 + 4.
                                                        678 = 4 \times (4 \times 44 - 4) - (44 - 4)/4.
                                                                                                                  744 = 44 + 444 + 4^4.
                                                                                                                  745 = 4^4 + 4 + (44 \times 44 + 4)/4.
613 = (4 + 4/4)^4 + 4 - 4 \times 4.
                                                        679 = (4 + 44/4) \times (44 + 4/4) + 4.
614 = (4 + 4/4)^4 - 44/4.
                                                        680 = (4+4) \times ((4-4/4)^4 + 4).
                                                                                                                  746 = 44 + 4 \times 4 \times 44 - (4 + 4)/4.
                                                        681 = (4 + 4/4)^4 + 44 + 4 + 4 + 4.
615 = (4 + 4/4)^4 - (44 - 4)/4.
                                                                                                                  747 = 44 + 4 \times 4 \times 44 - 4/4.
                                                                                                                  748 = 44 + 4 \times 4 \times 44.
                                                        682 = 44 \times (4^4 - 4 - 4)/(4 \times 4).
616 = (4+4) \times ((4-4/4)^4 - 4).
617 = (4 + 4/4)^4 - 4 - 4.
                                                        683 = 4 \times (4 \times 44 - 4) - 4 - 4/4.
                                                                                                                  749 = 44 + 4 \times 4 \times 44 + 4/4.
618 = (4 + 4/4)^4 + 4 - 44/4.
                                                        684 = 4 \times (4 \times 44 - 4) - 4.
                                                                                                                  750 = 44 + 4 \times 4 \times 44 + (4+4)/4.
619 = 444 + 4 \times 44 - 4/4.
                                                        685 = 4 \times 4 + 44 + (4 + 4/4)^4.
                                                                                                                  751 = 4 \times (444 - 4^4) - 4/4.
620 = 444 + 4 \times 44.
                                                        686 = 4 \times (4 \times 44 - 4) - (4 + 4)/4.
                                                                                                                 752 = 4 \times (444 - 4^4).
621 = (4 + 4/4)^4 - 4.
                                                        687 = 4 \times (4 \times 44 - 4) - 4/4.
                                                                                                                 753 = 4 \times (444 - 4^4) + 4/4.
622 = (4 + 4/4)^4 - 4 + 4/4.
                                                                                                                 754 = 4 \times (444 - 4^4) + (4 + 4)/4.
                                                        688 = 4 \times (4 \times 44 - 4).
623 = (4 + 4/4)^4 - (4 + 4)/4.
                                                                                                                 755 = (4 - 4/4) \times (4^4 - 4) - 4/4.
                                                        689 = 4 \times (4 \times 44 - 4) + 4/4.
624 = 4 \times (4 \times (44 - 4) - 4).
                                                        690 = 4 \times (4 \times 44 - 4) + (4 + 4)/4.
                                                                                                                 756 = (4 - 4/4) \times (4^4 - 4).
                                                                                                                 757 = (4 - 4/4) \times (4^4 - 4) + 4/4.
625 = (4 + 4/4)^4
                                                        691 = 4 \times (4 \times 44 - 4) + 4 - 4/4.
626 = (4 + 4/4)^4 + 4/4.
                                                                                                                 758 = (4 - 4/4) \times (4^4 - 4) + (4 + 4)/4.
                                                        692 = 4 \times (4 \times 44 - 4) + 4.
627 = (4 + 4/4)^4 + (4 + 4)/4.
                                                        693 = 44 \times (4^4 - 4)/(4 \times 4).
                                                                                                                 759 = (4 - 4/4) \times (4^4 - 4 + 4/4).
                                                                                                                  760 = (4 - 4/4) \times (4^4 - 4) + 4.
628 = 4 \times (4 \times (44 - 4) - 4) + 4.
                                                        694 = 4 \times 4 \times 44 - (44 - 4)/4.
629 = (4 + 4/4)^4 + 4.
                                                        695 = 4^4 + 444 - 4 - 4/4.
                                                                                                                  761 = (4 - 4/4) \times (4^4 - 4/4) - 4.
630 = (4 + 4/4)^4 + 4 + 4/4.
                                                        696 = 4^4 + 444 - 4.
                                                                                                                  762 = (4 - 4/4) \times (4^4 - (4 + 4)/4).
631 = (4 + 4/4)^4 + 4 + (4 + 4)/4.
                                                        697 = 4^4 + 444 - 4 + 4/4.
                                                                                                                  763 = 4 \times 4^4 - 4^4 - 4 - 4/4.
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764 = 4 \times 4^4 - 4^4 - 4.
                                                          829 = 44 \times (44 + 4^4)/(4 \times 4) + 4.
                                                                                                                    895 = 44 \times (4 - 4/4)^4/4 + 4.
765 = (4 - 4/4) \times (4^4 - 4/4).
                                                          830 = 4 \times 4 \times (44 + 4 + 4) - (4 + 4)/4.
                                                                                                                    896 = 4 \times (4^4 - 4 \times (4 + 4)).
766 = 4 \times 4^4 - 4^4 - (4+4)/4.
                                                          831 = 4 \times 4 \times (44 + 4 + 4) - 4/4.
                                                                                                                    897 = 4 \times 4 + 4^4 + (4 + 4/4)^4.
767 = 4 \times 4^4 - 4^4 - 4/4.
                                                          832 = 4 \times 4 \times (44 + 4 + 4).
                                                                                                                    898 = 4 \times (4^4 - 4 \times (4+4)) + (4+4)/4.
768 = 4 \times 4 \times (44 + 4).
                                                          833 = 4 \times 4 \times (44 + 4 + 4) + 4/4.
                                                                                                                    899 = ((4+4) \times 444 + 44)/4.
769 = 4 \times 4 \times (44 + 4) + 4/4.
                                                                                                                    900 = 4 \times (4^4 - 4 \times (4 + 4)) + 4.
                                                          834 = 4 \times 4 \times (44 + 4 + 4) + (4 + 4)/4.
                                                                                                                    901 = 4 \times (4^4 - 4 \times (4 + 4)) + 4 + 4/4.
770 = 4 \times 4 \times (44 + 4) + (4 + 4)/4.
                                                          835 = 4 \times 4 \times (44 + 4 + 4) + 4 - 4/4.
771 = (4 - 4/4) \times (4^4 + 4/4).
                                                                                                                    902 = 4 \times 4^4 - (444 + 44)/4.
                                                          836 = 4 \times 4 \times (44 + 4 + 4) + 4.
772 = 4 \times 4 \times (44 + 4) + 4.
                                                          837 = 4^4 - 44 + (4 + 4/4)^4.
                                                                                                                    903 = ((4+4) \times 444 + 44)/4 + 4.
                                                                                                                    904 = 4 \times (4^4 - 4 \times (4 + 4)) + 4 + 4.
                                                          838 = 4 \times (4^4 - 44) - (44 - 4)/4.
773 = 4 \times 4 \times (44 + 4) + 4 + 4/4.
774 = (4 - 4/4) \times (4^4 + (4 + 4)/4).
                                                          839 = 4444/4 - 4 \times 4 - 4^4.
                                                                                                                    905 = 4 \times 4 + ((4+4) \times 444 + 4)/4.
                                                          840 = 4 \times (4^4 - 44) - 4 - 4.
775 = 4 + ((4 - 4/4) \times (4/4 + (4^4))).
                                                                                                                    906 = 4 + 4 \times 4^4 - (444 + 44)/4.
776 = 4 \times 4 \times (44 + 4) + 4 + 4.
                                                          841 = 4^4 - 44 + 4 + (4/4 + 4)^4
                                                                                                                    907 = 4 \times 4 + 44 \times (4 - 4/4)^4/4.
                                                          842 = 4 \times (4^4 - 44) - 4 - (4 + 4)/4.
777 = (4 - 4/4) \times (((4^4) - 4/4) + 4).
                                                                                                                    908 = 44 + 4 \times (4^4 - 44 + 4).
                                                          843 = 4 \times (4^4 - 44) - 4 - 4/4.
                                                                                                                    909 = 4 \times 4^4 - 4 - 444/4.
778 = (4 - 4/4) \times (4^4 + (4+4)/4) + 4.
                                                                                                                    910 = 4 \times 4^4 - 4 - (444 - 4)/4.
                                                          844 = 4 \times (4^4 - 44) - 4.
779 = 44/4 + 4 \times 4 \times (44 + 4).
                                                          845 = 4 \times (4^4 - 44) - 4 + 4/4.
780 = (4 - 4/4) \times (4^4 + 4).
                                                                                                                    911 = 4 \times 4^4 - (444 + 4 + 4)/4.
                                                          846 = 4 \times (4^4 - 44) - (4 + 4)/4.
                                                                                                                    912 = 4 \times (4^4 - 4 \times (4 + 4) + 4).
781 = (4 - 4/4) \times (4^4 + 4) + 4/4.
                                                          847 = 4 \times (4^4 - 44) - 4/4.
                                                                                                                    913 = 4 \times 4^4 - 444/4.
782 = (4-4/4) \times (4^4+4) + (4+4)/4.
                                                          848 = 4 \times (4^4 - 44).
                                                                                                                    914 = 4 \times 4^4 - (444 - 4)/4.
783 = (4 - 4/4) \times (4^4 + 4 + 4/4).
                                                          849 = 4 \times (4^4 - 44) + 4/4.
                                                                                                                    915 = 4 \times 4^4 - (444 - 4 - 4)/4.
784 = 4 \times (4 \times (44 + 4) + 4).
                                                                                                                    916 = 4 \times (4^4 - 4 \times 4) - 44.
                                                          850 = 4 \times (4^4 - 44) + (4 + 4)/4.
785 = 4 \times (4 \times (44 + 4) + 4) + 4/4.
786 = 4 \times (4 \times (44+4)+4)+(4+4)/4.
                                                          851 = 4 \times (4^4 - 44) + 4 - 4/4.
                                                                                                                    917 = 4 \times 4^4 - 444/4 + 4.
787 = (4 - 4/4) \times (4^4 + 4 + 4/4) + 4.
                                                          852 = 4 \times (4^4 - 44) + 4.
                                                                                                                    918 = 4 \times 4^4 - (444 - 4)/4 + 4.
                                                          853 = 4 \times (4^4 - 44) + 4 + 4/4.
788 = 4 \times (4 \times (44 + 4) + 4) + 4.
                                                                                                                    919 = 4444/4 - 4 \times (44 + 4).
                                                          854 = (4444 - 4)/4 - 4^4.
                                                                                                                    920 = (4+4) \times (4+444/4).
789 = 4 \times (4 \times (44 + 4) + 4) + 4 + 4/4.
790 = (4-4/4) \times (4^4+4) + (44-4)/4.
                                                          855 = 4444/4 - 4^4.
                                                                                                                    921 = 4 \times 4^4 - 444/4 + 4 + 4.
                                                          856 = 4 \times (4^4 - 44) + 4 + 4.
                                                                                                                    922 = 4 \times 4^4 - (444 - 4)/4 + 4 + 4.
791 = (4 - 4/4) \times (4^4 + 4) + 44/4.
                                                          857 = 4 \times (4^4 - 44) + 4 + 4 + 4/4.
792 = 44 \times (4 \times 4 + (4+4)/4).
                                                                                                                    923 = 44 + 44 \times (4 \times 4 + 4) - 4/4.
793 = 44 \times (4 \times 4 + (4+4)/4) + 4/4.
                                                          858 = (4444 - 4)/4 - 4^4 + 4.
                                                                                                                    924 = 44 + (44 \times ((4 \times 4) + 4)).
                                                                                                                    925 = 44 + 4^4 + (4 + 4/4)^4.
794 = 444 + (4+4) \times 44 - (4+4)/4.
                                                          859 = 4444/4 - 4^4 + 4.
795 = 444 + (4 + 4) \times 44 - 4/4.
                                                          860 = (4 + 4/4) \times (4 \times 44 - 4).
                                                                                                                    926 = 44 + 4^4 + (4 + 4/4)^4 + 4/4.
796 = 444 + (4 + 4) \times 44.
                                                          861 = (4 + 4/4) \times (4 \times 44 - 4) + 4/4.
                                                                                                                    927 = 4 \times (4^4 - 4) - (4 - 4/4)^4.
                                                                                                                    928 = 4 \times (4^4 - 4 \times 4 - 4 - 4).
797 = 4 \times 44 - 4 + (4 + 4/4)^4.
                                                          862 = 4 \times (4^4 - 44 + 4) - (4 + 4)/4.
                                                          863 = 4 \times (4^4 - 44 + 4) - 4/4.
                                                                                                                    929 = 4 \times (4^4 + 4) - 444/4.
798 = (4 - 4/4) \times (4^4 + (44 - 4)/4).
                                                          864 = 4 \times (4^4 - 44 + 4).
                                                                                                                    930 = 4 \times (4^4 + 4) - (444 - 4)/4.
799 = (4 \times 4 + 4) \times (44 - 4) - 4/4.
                                                          865 = 4 \times (4^4 - 44 + 4) + 4/4.
                                                                                                                    931 = 4 \times (4^4 - 4) - (4 - 4/4)^4 + 4.
800 = (4 \times 4 + 4) \times (44 - 4).
                                                          866 = 4 \times (4^4 - 44 + 4) + (4 + 4)/4.
                                                                                                                    932 = 4 \times (4^4 - 4 \times 4 - 4 - 4) + 4.
801 = 4 \times 44 + (4 + 4/4)^4
                                                          867 = 4 \times (4^4 - 44 + 4) + 4 - 4/4.
                                                                                                                    933 = 4 \times (4^4 + 4) + 4 - 444/4.
802 = 4 \times 44 + (4 + 4/4)^4 + 4/4.
                                                          868 = 4 \times (4^4 - 44 + 4) + 4.
                                                                                                                    934 = (4444 - 4)/4 - 4 \times 44.
803 = (4 \times 4 + 4) \times (44 - 4) + 4 - 4/4.
804 = (4 \times 4 + 4) \times (44 - 4) + 4.
                                                          869 = 44 \times (4 \times 4 + 4) - 44/4.
                                                                                                                    935 = 44 \times ((4 - 4/4)^4 + 4)/4.
                                                                                                                    936 = 4 \times 4^4 - 44 - 44.
805 = 4 \times 44 + 4 + (4 + 4/4)^4.
                                                          870 = 4^4 + (4 + 4/4)^4 - 44/4.
                                                          871 = 4 \times 4 - 4^4 + 4444/4.
                                                                                                                    937 = 4 \times 4^4 - 44 - 44 + 4/4.
806 = (44 - 4) \times (4 - 4/4)^4/4 - 4.
807 = (4 \times 4 + 4) \times (44 - 4) + 4 +
                                                          872 = 44 \times (4 \times 4 + 4) - 4 - 4.
                                                                                                                    938 = (4^4 \times 44 - 4 - 4)/(4 + 4 + 4).
4 - 4/4.
                                                          873 = 4^4 + (4 + 4/4)^4 - 4 - 4.
                                                                                                                    939 = 4 \times 4^4 - (4 - 4/4)^4 - 4.
808 = (4 \times 4 + 4) \times (44 - 4) + 4 + 4.
                                                          874 = 44 \times (4 \times 4 + 4) - 4 - (4 + 4)/4.
                                                                                                                    940 = 4 \times (4^4 - 4 \times 4 - 4) - 4.
                                                                                                                    941 = 4 \times (4^4 - 4 \times 4 - 4) - 4 + 4/4.
809 = 4 \times 44 + 4 + 4 + (4 + 4/4)^4.
                                                          875 = 4 \times 44 \times (4 + 4/4) - 4/4.
                                                                                                                    942 = 4 \times 4^4 - (4 - 4/4)^4 - 4/4.
810 = (44 - 4) \times (4 - 4/4)^4/4.
                                                          876 = 44 \times (4 \times 4 + 4) - 4.
                                                                                                                    943 = 4 \times 4^4 - (4 - 4/4)^4.
811 = 4 \times 4^4 + 44 - 4^4 - 4/4.
                                                          877 = 4^4 + (4 + 4/4)^4 - 4.
812 = 4 \times 4 \times (44 + 4) + 44.
                                                                                                                    944 = 4 \times (4^4 - 4 \times 4 - 4).
                                                          878 = 44 \times (4 \times 4 + 4) - (4 + 4)/4.
813 = 4 \times 4 \times (44 + 4) + 44 + 4/4.
                                                                                                                    945 = 4 \times (4^4 - 4 \times 4 - 4) + 4/4.
                                                          879 = 44 \times (4 \times 4 + 4) - 4/4.
814 = (44 - 4) \times (4 - 4/4)^4/4 + 4.
                                                          880 = 44 \times (4 \times 4 + 4).
                                                                                                                    946 = 44 \times (4 \times 44 - 4)/(4 + 4).
                                                          881 = 4^4 + (4 + 4/4)^4.
                                                                                                                    947 = 4 \times 4^4 - (4 - 4/4)^4 + 4.
815 = 4 \times 4 \times 44 + 444/4.
                                                                                                                    948 = 4 \times (4^4 - 4 \times 4 - 4) + 4.
816 = 4 \times (4 \times (44 - 4) + 44).
                                                          882 = 4^4 + (4 + 4/4)^4 + 4/4.
                                                                                                                    949 = 4 \times 4^4 - (44 + 4^4)/4.
817 = 4 \times (44 + 4) + (4 + 4/4)^4
                                                          883 = 44 \times (4 \times 4 + 4) + 4 - 4/4.
818 = (44 - 4) \times (4 - 4/4)^4/4 + 4 + 4.
                                                          884 = 44 \times (4 \times 4 + 4) + 4.
                                                                                                                    950 = 44 \times (4 \times 44 - 4)/(4 + 4) + 4.
                                                                                                                    951 = 4 \times 4^{4} + 4 + 4 - (4 - 4/4)^{4}.
819 = ((4+4)^4 - 4/4)/(4+4/4).
                                                          885 = (4 + 4/4)^4 + 4^4 + 4.
820 = ((4+4)^4 + 4)/(4+4/4).
                                                                                                                    952 = 4 \times (4^4 - 4 \times 4) - 4 - 4.
                                                          886 = (4+4)/4 \times (444-4/4).
                                                                                                                    953 = 4 \times 4^4 + 4 - (44 + 4^4)/4.
821 = 4 \times (44 + 4) + (4 + 4/4)^4 + 4.
                                                          887 = ((4+4) \times 444 - 4)/4.
                                                                                                                    954 = 4 \times 4^4 - (4^4 + 4 + 4)/4 - 4.
822 = (44 \times (44 + 4^4)/4 + 4)/4 - 4.
                                                          888 = (4 + 4) \times 444/4.
823 = ((4+4)^4 - 4/4)/(4+4/4) + 4.
                                                          889 = ((4+4) \times 444 + 4)/4.
                                                                                                                    955 = 4 \times (4^4 - 4 \times 4) - 4 - 4/4.
                                                                                                                    956 = 4 \times (4^4 - 4 \times 4) - 4.
824 = ((4+4)^4 + 4)/(4+4/4) + 4.
                                                          890 = (4+4) \times (444+4/4)/4.
                                                                                                                    957 = 4 \times (4^4 - 4 \times 4) - 4 + 4/4.
825 = 44 \times (44 + 4^4)/(4 \times 4).
                                                          891 = 44 \times (4 - 4/4)^4/4.
                                                          892 = 444 + 444 + 4.
                                                                                                                    958 = 4 \times 4^4 - (4^4 + 4 + 4)/4.
826 = (44 \times (44 + 4^4)/4 + 4)/4.
                                                                                                                    959 = 4 \times (4^4 - 4 \times 4) - 4/4.
827 = 4 \times 4 \times (44 + 4 + 4) - 4 - 4/4.
                                                          893 = ((4+4) \times 444 + 4)/4 + 4.
828 = 4 \times 4 \times (44 + 4 + 4) - 4.
                                                          894 = (4+4) \times (444+4/4)/4+4.
                                                                                                                    960 = 4 \times (4^4 - 4 \times 4).
```

```
961 = 4 \times (4^{4} - 4 \times 4) + 4/4.
962 = 4 \times (4^{4} - 4 \times 4) + (4 + 4)/4.
963 = 4 \times 4^{4} + 4 - (4^{4} + 4)/4.
964 = 4 \times (4^{4} - 4 \times 4) + 4.
965 = 4 \times (4^{4} - 4 \times 4) + 4 + 4/4.
966 = 4 \times (44 \times 44 - 4)/(4 + 4).
967 = (44 \times (44 + 44) - 4)/4.
968 = 4 \times (4^{4} - 4 \times 4) + 4 + 4.
969 = 4 \times 4^{4} - 44 - 44/4.
970 = 4 \times (44 \times 44 + 4)/(4 + 4).
971 = 4 \times (4^{4} - 4 \times 4) + 44/4.
972 = 4 \times (4 - 4/4)^{(4+4/4)}.
973 = 4 \times 4^{4} - 44 + 4 - 44/4.
974 = 4 \times (44 \times 44 + 4)/(4 + 4) + 4.
```

$$\begin{array}{l} 975 = 4 \times 4^4 - 44 - 4 - 4/4. \\ 976 = 4 \times (4^4 - 4 \times 4 + 4). \\ 977 = 4 \times (4^4 - 4 \times 4 + 4) + 4/4. \\ 978 = 4 \times 4^4 - 44 - (4 + 4)/4. \\ 979 = 4 \times 4^4 - 44 - 4/4. \\ 980 = 4 \times 4^4 - 44. \\ 981 = 4 \times 4^4 - 44 + (4 + 4)/4. \\ 982 = 4 \times 4^4 - 44 + (4 + 4)/4. \\ 983 = 4 \times 4^4 - 44 + 4 - 4/4. \\ 984 = 4 \times 4^4 - 44 + 4 + 4 - 4/4. \\ 985 = 4 \times 4^4 - 44 + 4 + 4/4. \\ 986 = 4 \times 4^4 - 44 + 4 + 4/4. \\ 987 = 4 \times 4^4 - 44 + 4 + 4/4. \\ 988 = 4 \times (4^4 - 4 - 4) - 4. \end{array}$$

| $989 = 4 \times (4^4 - 4 - 4) - 4 + 4/4.$ |
|---|
| $990 = 4 \times (4^4 - 4 - 4) - (4 + 4)/4.$ |
| $991 = 4 \times (4^4 - 4 - 4) - 4/4.$ |
| $992 = 4 \times (4^4 - 4 - 4).$ |
| $993 = 4 \times (4^4 - 4 - 4) + 4/4.$ |
| $994 = 4 \times (4^4 - 4 - 4) + (4 + 4)/4.$ |
| $995 = 4 \times (4^4 - 4 - 4) + 4 - 4/4.$ |
| $996 = 4 \times (4^4 - 4 - 4) + 4.$ |
| $997 = 4 \times (4^4 - 4) - 44/4.$ |
| $998 = 4 \times (4^4 - 4) - (44 - 4)/4.$ |
| $999 = (4 + 4 + 4/4) \times 444/4.$ |
| $1000 = 4 \times (4^4 - 4) - 4 - 4.$ |

8. Representations Using Number 5

| 101 F /F F F) F/F |
|---|
| $101 = 5 \times (5 \times 5 - 5) + 5/5.$ |
| $102 = 5 \times (5 \times 5 - 5) + (5 + 5)/5.$ |
| $103 = 5 \times (5 \times 5 - 5) + 5 - (5 + 5)/5.$ |
| $104 = (5^5 - 5)/(5 \times 5 + 5).$ |
| $105 = 5 \times (5 \times 5 - 5) + 5.$ |
| 106 = 555/5 - 5. |
| 107 = (555 + 5)/5 - 5. |
| 108 = 55 + 55 - (5+5)/5. |
| 109 = 55 + 55 - 5/5. |
| 110 = 55 + 55. |
| 111 = 555/5. |
| 112 = (555 + 5)/5. |
| 113 = (555 + 5 + 5)/5. |
| $114 = 5 \times 5 \times 5 - 55/5.$ |
| 115 = 55 + 55 + 5. |
| 116 = 5 + 555/5. |
| 117 = 5 + (555 + 5)/5. |
| 118 = 5 + (555 + 5 + 5)/5. |
| |
| $119 = 5 \times 5 \times 5 - 5 - 5/5.$ $120 = 5 \times 5 \times 5 - 5.$ |
| $120 = 5 \times 5 \times 5 = 5.$ $121 = 5 + 5 + 555/5.$ |
| 127 = 3 + 3 + 353/3. $122 = (555 + 55)/5.$ |
| |
| $123 = 5 \times 5 \times 5 - (5+5)/5.$ |
| $124 = 5 \times 5 \times 5 - 5/5.$ |
| $125 = 5 \times 5 \times 5.$ |
| $126 = 5 \times 5 \times 5 + 5/5.$ |
| $127 = 5 \times 5 \times 5 + (5+5)/5.$ |
| $128 = 5 \times 5 \times 5 + 5 - (5+5)/5.$ |
| $129 = 5 \times 5 \times 5 + 5 - 5/5.$ |
| $130 = 5 \times 5 \times 5 + 5.$ |
| $131 = 5 \times 5 \times 5 + 5 + 5/5.$ |
| $132 = 5 \times 5 \times 5 + 5 + (5+5)/5.$ |
| $133 = 5 \times 5 \times 5 + 5 + 5 - (5+5)/5.$ |
| $134 = 5 \times 5 \times 5 + 5 + 5 - 5/5.$ |
| $135 = 5 \times 5 \times 5 + 5 + 5.$ |
| $136 = 5 \times 5 + 555/5.$ |
| $137 = 5 \times 5 + (555 + 5)/5.$ |
| $138 = 5 \times (5 \times 55 + 5)/(5 + 5).$ |
| $139 = 5 \times (5 \times 5 + 5) - 55/5.$ |
| $140 = 5 \times 5 \times 5 + 5 + 5 + 5.$ |
| $141 = 5 \times 5 + 5 + 555/5.$ |
| $142 = 5 \times 5 + 5 + (555 + 5)/5.$ |
| $143 = 5 + (5 \times 5 \times 55 + 5)/(5 + 5).$ |
| $144 = (5 + 5/5) \times (5 \times 5 - 5/5).$ |
| $145 = 5 \times (5 \times 5 + 5) - 5.$ |
| $146 = 5 \times (5 \times 5 + 5) - 5 + 5/5.$ |
| $140 = 3 \times (3 \times 3 + 3) - 3 + 3/3.$ $147 = 5 \times 5 + (555 + 55)/5.$ |
| $147 = 5 \times 5 + (505 + 55)/5.$ |

 $148 = 5 \times (5 \times 5 + 5) - (5 + 5)/5.$

```
149 = 5 \times (5 \times 5 + 5) - 5/5.
150 = 5 \times (5 \times 5 + 5).
151 = 5 \times (5 \times 5 + 5) + 5/5.
152 = 5 \times (5 \times 5 + 5) + (5 + 5)/5.
153 = 5 \times (5 \times 5 + 5) + 5 - (5 + 5)/5.
154 = 5 \times (5 \times 5 + 5) + 5 - 5/5.
155 = 5 \times (5 \times 5 + 5) + 5.
156 = (5^5 - 5)/(5 \times 5 - 5).
157 = 5 \times 5 \times 5 + ((5+5)/5)^5.
158 = 5 \times ((5+5)/5)^5 - (5+5)/5.
159 = (55 + 5^5)/(5 \times 5 - 5).
160 = 5 \times ((5+5)/5)^5.
161 = 5 + (5^5 - 5)/(5 \times 5 - 5).
162 = 5 \times 5 \times 5 + 5 + ((5+5)/5)^5.
163 = 55 \times 5 - (555 + 5)/5.
164 = 55 \times 5 - 555/5.
165 = 5 + 5 \times ((5+5)/5)^5.
166 = 55 + 555/5.
167 = 55 + (555 + 5)/5.
168 = 55 + (555 + 5 + 5)/5.
169 = 55 \times 5 + 5 - 555/5.
170 = 5 \times (5 \times 5 + 5 + 5) - 5.
171 = 55 + 5 + 555/5.
172 = 55 + 5 + (555 + 5)/5.
173 = 5 \times (5 \times 5 + 5 + 5) - (5 + 5)/5.
174 = 5 \times (5 \times 5 + 5 + 5) - 5/5.
175 = 5 \times (5 \times 5 + 5 + 5).
176 = 5 \times (5 \times 5 + 5 + 5) + 5/5.
177 = 55 + (555 + 55)/5.
178 = 55 + 5 \times 5 \times 5 - (5 + 5)/5.
179 = 55 + 5 \times 5 \times 5 - 5/5.
180 = 55 + 5 \times 5 \times 5.
181 = 55 + 5 \times 5 \times 5 + 5/5.
182 = 55 + 5 \times 5 \times 5 + (5 + 5)/5.
183 = (5 - (5 + 5)/5)^5 - 55 - 5.
184 = 5 \times 5 \times 5 + 55 + 5 - 5/5.
185 = 5 \times 5 \times 5 + 55 + 5.
186 = 5 \times 5 \times 5 + 55 + 5 + 5/5.
187 = 55 \times (5 + (55 + 5)/5)/5.
188 = (5 - (5 + 5)/5)^5 - 55.
189 = 5 \times (55 + 5) - 555/5.
190 = 5 \times 5 \times 5 + 55 + 5 + 5.
191 = 5 \times 5 + 55 + 555/5.
192 = (5 + 5/5) \times ((5 + 5)/5)^5.
193 = (5 - (5 + 5)/5)^5 - 55 + 5.
194 = 5 \times 5 \times (5 + 5) - 55 - 5/5.
195 = 5 \times 5 \times (5+5) - 55.
196 = 5 \times 5 \times (5+5) - 55 + 5/5.
```

```
197 = 5 + (5 + 5/5) \times ((5 + 5)/5)^5.
198 = (5+5) \times (5 \times 5 - 5) - (5+5)/5.
199 = (5+5) \times (5 \times 5 - 5) - 5/5.
200 = (5+5) \times (5 \times 5 - 5).
201 = (5+5) \times (5 \times 5 - 5) + 5/5.
202 = (5+5) \times (5 \times 5 - 5) + (5+5)/5.
203 = (5^5 - 5)/(5 + 5 + 5) - 5.
204 = (5+5) \times (5 \times 5 - 5) + 5 - 5/5.
205 = (5+5) \times (5 \times 5 - 5) + 5.
206 = (5+5) \times (5 \times 5 - 5) + 5 + 5/5.
207 = (5^5 - 5 \times 5 + 5)/(5 + 5 + 5).
208 = (5^5 - 5)/(5 + 5 + 5).
209 = (5^5 + 5 + 5)/(5 + 5 + 5).
210 = (5+5) \times (5 \times 5 - 5) + 5 + 5.
211 = 55 + (5^5 - 5)/(5 \times 5 - 5).
212 = (55 + 5^5)/(5 + 5 + 5).
213 = (5^5 - 5)/(5 + 5 + 5) + 5.
214 = (5^5 + 5 + 5)/(5 + 5 + 5) + 5.
215 = 55 \times 5 - 55 - 5.
216 = (5 - 5/5) \times (55 - 5/5).
217 = (55 + 5^5)/(5 + 5 + 5) + 5.
218 = (5 - (5 + 5)/5)^5 - 5 \times 5.
219 = 55 \times 5 - 55 - 5/5.
220 = 55 \times (5 - 5/5).
221 = 55 \times (5 - 5/5) + 5/5.
222 = 555 \times (5+5)/(5 \times 5).
223 = (5 - (5 + 5)/5)^5 - 5 \times 5 + 5.
224 = (5 - 5/5) \times (55 + 5/5).
225 = 5 \times (55 - 5 - 5).
226 = 5 \times (55 - 5 - 5) + 5/5.
227 = (5+5) \times \frac{555}{(5 \times 5)} + 5.
228 = (5 - 5/5) \times (55 + (5 + 5)/5).
229 = (5 - 5/5) \times (55 + 5/5) + 5.
230 = 5 \times (55 - 5 - 5) + 5.
231 = 5 \times (55 - 5 - 5) + 5 + 5/5.
232 = (5+5) \times (5+555/5)/5.
233 = (5 - (5 + 5)/5)^5 - 5 - 5.
234 = (5 + 5 - 5/5) \times (5 \times 5 + 5/5).
235 = 5 \times (55 - 5 - 5) + 5 + 5.
236 = 5 \times 5 \times 5 + 555/5.
237 = 5 \times 5 \times 5 + (555 + 5)/5.
238 = (5 - (5 + 5)/5)^5 - 5.
239 = 5 \times 5 \times (5 + 5) - 55/5.
240 = (5+5) \times (5 \times 5 - 5/5).
241 = 5 \times 5 \times 5 + 5 + 555/5.
242 = (5 - (5 + 5)/5)^5 - 5/5.
243 = (5 - (5 + 5)/5)^5.
244 = (5 - (5 + 5)/5)^5 + 5/5.
```

 $310 = 5 \times (55 + 5) + 5 + 5$.

```
311 = 5 \times (55 + 5) + 55/5.
                                                                                                                377 = 5 \times 5 \times (5+5+5) + (5+5)/5.
245 = 5 \times 5 \times (5 + 5) - 5.
246 = 5 \times 5 \times (5+5) - 5 + 5/5.
                                                        312 = (5^5 - 5)/(5 + 5).
                                                                                                                 378 = (5 + (5 + 5)/5) \times (55 - 5/5).
247 = 5 + (5 - (5 + 5)/5)^5 - 5/5.
                                                        313 = (5^5 + 5)/(5 + 5).
                                                                                                                 379 = 5 \times 5 \times (5 + 5 + 5) + 5 - 5/5.
248 = 5 + (5 - (5 + 5)/5)^5.
                                                        314 = (5^5 + 5)/(5 + 5) + 5/5.
                                                                                                                 380 = 5 \times 5 \times (5 + 5 + 5) + 5.
249 = 5 \times 5 \times (5 + 5) - 5/5.
                                                        315 = (5 \times 5 + 5^5)/(5 + 5).
                                                                                                                 381 = 5 \times 5 \times (5 + 5 + 5) + 5 + 5/5.
250 = 5 \times 5 \times (5 + 5).
                                                        316 = 5 \times (55 + 5) + 5 + 55/5.
                                                                                                                 382 = 5^5/5 - (5 - (5 + 5)/5)^5.
251 = 5 \times 5 \times (5 + 5) + 5/5.
                                                        317 = (5^5 - 5)/(5 + 5) + 5.
                                                                                                                 383 = (5 + (5 + 5)/5) \times (55 - 5/5) + 5.
252 = 5 \times 5 \times (5+5) + (5+5)/5.
                                                        318 = (5^5 + 5)/(5 + 5) + 5.
                                                                                                                 384 = (55 + 5) \times ((5 + 5)/5)^5/5.
                                                        319 = (5^5 + 5)/(5 + 5) + 5 + 5/5.
253 = (5 - (5 + 5)/5)^5 + 5 + 5.
                                                                                                                 385 = 55 \times (5 + (5 + 5)/5).
254 = 5 \times 5 \times (5+5) + 5 - 5/5.
                                                        320 = (5+5) \times ((5+5)/5)^5.
                                                                                                                 386 = 5 \times 55 + 555/5.
                                                                                                                 387 = 5 \times 55 + (555 + 5)/5.
255 = 5 \times 5 \times (5 + 5) + 5.
                                                        321 = (5+5) \times ((5+5)/5)^5 + 5/5.
256 = (5 - 5/5)^{(5 - 5/5)}.
                                                        322 = (5^5 - 5)/(5 + 5) + 5 + 5.
                                                                                                                 388 = 5 \times 55 + (555 + 5 + 5)/5.
257 = (5^5 - 5)/(5 + 5) - 55.
                                                        323 = (5^5 + 5)/(5 + 5) + 5 + 5.
                                                                                                                 389 = 5 \times (5 \times 5 + 55) - 55/5.
258 = (5^5 + 5)/(5 + 5) - 55.
                                                        324 = (5 + 5/5) \times (55 - 5/5).
                                                                                                                 390 = 55 \times (5 + (5 + 5)/5) + 5.
                                                                                                                391 = 5 \times 55 + 5 + 555/5.
259 = 5 \times 55 - 5 - 55/5.
                                                        325 = 5 \times (55 + 5 + 5).
                                                        326 = 5 \times (55 + 5 + 5) + 5/5.
260 = 5 \times 5 \times (5+5) + 5 + 5.
                                                                                                                 392 = (5 + (5 + 5)/5) \times (55 + 5/5).
261 = (5 - 5/5)^{(5-5/5)} + 5.
                                                        327 = 5 + 5 + 5 + (5^5 - 5)/(5 + 5).
                                                                                                                 393 = 5 \times 5 + 55 + (5^5 + 5)/(5 + 5).
262 = (5^5 - 5)/(5 + 5) + 5 - 55.
                                                        328 = 5 + 5 + 5 + (5^5 + 5)/(5 + 5).
                                                                                                                394 = (5 - 5/5)^5 - 5^5/5 - 5.
263 = 5 \times 55 - (55 + 5)/5.
                                                        329 = 55 + 5 \times 55 - 5/5.
                                                                                                                395 = 5 \times (5 \times 5 + 55) - 5.
264 = 5 \times 55 - 55/5.
                                                        330 = 55 + 5 \times 55.
                                                                                                                396 = 5 \times (5 \times 5 + 55) - 5 + 5/5.
265 = 5 \times 55 - 5 - 5.
                                                        331 = 55 + 5 \times 55 + 5/5.
                                                                                                                397 = (5+(5+5)/5) \times (55+5/5) + 5.
                                                        332 = 5 \times 5 + (5^5 - 55)/(5 + 5).
                                                                                                                 398 = (5 - 5/5)^5 - (5^5 + 5)/5.
266 = 5 \times 55 - 5 - 5 + 5/5.
267 = 5 \times 55 - 5 - 5 + (5 + 5)/5.
                                                        333 = 5 \times 5 - 5 + (5^5 + 5)/(5 + 5).
                                                                                                                 399 = (5 - 5/5)^5 - 5^5/5.
268 = 5 \times 5 + (5 - (5 + 5)/5)^5.
                                                        334 = 5 \times 55 + 55 + 5 - 5/5.
                                                                                                                400 = 5 \times (5 \times 5 + 55).
269 = 5 \times 55 - 5 - 5/5.
                                                        335 = 5 \times 55 + 55 + 5.
                                                                                                                401 = 5 \times (5 \times 5 + 55) + 5/5.
                                                                                                                402 = 5 \times (5 \times 5 + 55) + (5 + 5)/5.
270 = 5 \times 55 - 5.
                                                        336 = (5 + 5/5) \times (55 + 5/5).
                                                                                                                403 = 5 + (5 - 5/5)^5 - (5^5 + 5)/5.
271 = 5 \times 55 - 5 + 5/5.
                                                        337 = 5 \times 5 + (5^5 - 5)/(5 + 5).
                                                                                                                404 = 5 + (5 - 5/5)^5 - 5^5/5.
272 = 5 \times 55 - 5 + (5 + 5)/5.
                                                        338 = 5 \times 5 + (5^5 + 5)/(5 + 5).
                                                        339 = (5^5 - 55)/5 - 5 \times 55.
273 = 5 \times 55 - ((5+5)/5).
                                                                                                                405 = 5 \times (5 \times 5 + 55) + 5.
274 = 5 \times 55 - 5/5.
                                                        340 = 5 \times 55 + 55 + 5 + 5.
                                                                                                                 406 = 5 \times (5 \times 5 + 55) + 5 + 5/5.
275 = 5 \times 55.
                                                        341 = 5 + (5 + 5/5) \times (55 + 5/5).
                                                                                                                 407 = 55 \times (((5+5)/5)^5 + 5)/5.
                                                        342 = 5 \times 5 + 5 + (5^5 - 5)/(5 + 5).
276 = 5 \times 55 + 5/5.
                                                                                                                 408 = (5 \times 5 - 5/5) \times (5 + (55 + 5)/5).
277 = 5 \times 55 + (5 + 5)/5.
                                                        343 = 5 \times 5 + 5 + (5^5 + 5)/(5 + 5).
                                                                                                                409 = 5 + 5 + (5 - 5/5)^5 - 5^5/5.
278 = 5 \times 55 + 5 - (5 + 5)/5.
                                                        344 = (5^5 - 5)/5 - 5 \times 55 - 5.
                                                                                                                410 = 5 \times (5 \times 5 + 55) + 5 + 5.
                                                        345 = 5^5 - 5 \times 555 - 5.
279 = 5 \times 55 + 5 - 5/5.
                                                                                                                411 = 5 \times (5 \times 5 + 55) + 55/5.
                                                        346 = (5^5 + 5)/5 - 5 \times 55 - 5.
280 = 5 \times 55 + 5.
                                                                                                                412 = 55 \times (5 + ((5 + 5)/5)^5)/5 + 5.
281 = 5 \times 55 + 5 + 5/5.
                                                        347 = 55 \times ((5+5)/5)^5/5 - 5.
                                                                                                                413 = 5 \times (5 \times 5 - 5) + (5^5 + 5)/(5 + 5).
                                                                                                                414 = (5 - 5/5)^5 - 555 - 55.
                                                        348 = (5^5 - 5 - 5)/5 - 5 \times 55.
282 = 5 \times 55 + 5 + (5 + 5)/5.
                                                        349 = (5^5 - 5)/5 - 5 \times 55.
283 = 5 \times 55 + 5 + 5 - (5 + 5)/5.
                                                                                                                415 = 5 \times (5 \times 5 + 55) + 5 + 5 + 5.
                                                        350 = 5 \times (55 + 5 + 5 + 5).
284 = 5 \times 55 + 5 + 5 - 5/5.
                                                                                                                416 = (5 + 55/5) \times (5 \times 5 + 5/5).
285 = 5 \times 55 + 5 + 5.
                                                        351 = (5^5 + 5)/5 - 5 \times 55.
                                                                                                                417 = (5^5 + 5^5 + 5)/(5 + 5 + 5).
286 = 5 \times 55 + 55/5.
                                                        352 = 55 \times ((5+5)/5)^5/5.
                                                                                                                418 = 55 + 55 - 5 + (5^5 + 5)/(5 + 5).
                                                        353 = (55 \times ((5+5)/5)^5 + 5)/5.
287 = 5 \times 55 + (55 + 5)/5.
                                                                                                                419 = 555 - 5 \times 5 - 555/5.
288 = (5^5 + 5)/(5 + 5) - 5 \times 5.
                                                        354 = (5^5 - 5)/5 + 5 - 5 \times 55.
                                                                                                                420 = (55 + 5) \times (5 + (5 + 5)/5).
289 = 5 \times (55 + 5) - 55/5.
                                                        355 = 55 + 5 \times (55 + 5).
                                                                                                                421 = 5 + (5 + 55/5) \times (5 \times 5 + 5/5).
290 = 5 \times 55 + 5 + 5 + 5.
                                                        356 = (5^5 + 5)/5 + 5 - 5 \times 55.
                                                                                                                422 = 5 + (5^5 + 5^5 + 5)/(5 + 5 + 5).
291 = 5 \times 55 + 5 + 55/5.
                                                        357 = 55 \times ((5+5)/5)^5/5 + 5.
                                                                                                                423 = 55 + 55 + (5^5 + 5)/(5 + 5).
292 = 5 \times 55 + 5 + (55 + 5)/5.
                                                        358 = (55 \times ((5+5)/5)^5 + 5)/5 + 5.
                                                                                                                424 = (5 - 5/5) \times (555/5 - 5).
293 = (5^5 + 5)/(5 + 5) + 5 - 5 \times 5.
                                                        359 = (5 + 5/5) \times (55 + 5) - 5/5.
                                                                                                                425 = 5 \times (5 \times 5 + 55 + 5).
294 = 5 \times (55 + 5) - 5 - 5/5.
                                                        360 = (5 + 5/5) \times (55 + 5).
                                                                                                                426 = 5 \times (5 \times 5 + 55 + 5) + 5/5.
                                                        361 = (5 + 5/5) \times (55 + 5) + 5/5.
295 = 5 \times (55 + 5) - 5.
                                                                                                                427 = 5 \times (5 \times 5 + 55 + 5) + (5 + 5)/5.
296 = 5 \times (55 + 5) - 5 + 5/5.
                                                        362 = 55 + (5^5 - 55)/(5 + 5).
                                                                                                                428 = (5 - 5/5) \times ((555 + 5)/5 - 5).
297 = 5 \times 55 + (55 + 55)/5.
                                                        363 = 55 - 5 + (5^5 + 5)/(5 + 5).
                                                                                                                429 = 555 - 5 \times 5 \times 5 - 5/5.
298 = 55 + (5 - (5 + 5)/5)^5.
                                                        364 = 5 \times 5 \times (5 + 5 + 5) - 55/5.
                                                                                                                430 = 555 - 5 \times 5 \times 5.
299 = 5 \times (55 + 5) - 5/5.
                                                        365 = (5 + 5/5) \times (55 + 5) + 5.
                                                                                                                431 = 555 - 5 \times 5 \times 5 + 5/5.
300 = 5 \times (55 + 5).
                                                        366 = (5 + 5/5) \times (55 + 5 + 5/5).
                                                                                                                432 = 5 \times 5 \times 5 + (5^5 - 55)/(5 + 5).
                                                        367 = 55 + (5^5 - 5)/(5 + 5).
                                                                                                                433 = 5 \times 5 \times 5 - 5 + (5^5 + 5)/(5 + 5).
301 = 5 \times (55 + 5) + 5/5.
302 = 5 \times (55 + 5) + (5 + 5)/5.
                                                        368 = 55 + (5^5 + 5)/(5 + 5).
                                                                                                                434 = 555 - 5 \times 5 \times 5 + 5 - 5/5.
303 = (5^5 + 5)/(5 + 5) - 5 - 5.
                                                        369 = 5 \times 5 \times (5 + 5 + 5) - 5 - 5/5.
                                                                                                                435 = 555 - 5 \times 5 \times 5 + 5.
                                                                                                                436 = 555 - 5 \times 5 \times 5 + 5 + 5/5.
304 = 5 \times (55 + 5) + 5 - 5/5.
                                                        370 = 5 \times 5 \times (5 + 5 + 5) - 5.
                                                                                                                437 = 5 \times 5 \times 5 + (5^5 - 5)/(5 + 5).
305 = 5 \times (55 + 5) + 5.
                                                        371 = 5 \times 5 \times (5 + 5 + 5) - 5 + 5/5.
                                                                                                                438 = 5 \times 5 \times 5 + (5^5 + 5)/(5 + 5).
306 = 5 \times (55 + 5) + 5 + 5/5.
                                                        372 = 55 + 5 + (5^5 - 5)/(5 + 5).
307 = (5^5 - 55)/(5 + 5).
                                                        373 = 55 + 5 + (5^5 + 5)/(5 + 5).
                                                                                                                439 = 555 - 5 - 555/5.
308 = (5^5 + 5)/(5 + 5) - 5.
                                                        374 = 5 \times 5 \times (5 + 5 + 5) - 5/5.
                                                                                                                440 = (5 + 5) \times (55 - 55/5).
                                                                                                                441 = (5 + 5 + 55/5)^{((5+5)/5)}.
309 = 5 \times (55 + 5) + 5 + 5 - 5/5.
                                                        375 = 5 \times 5 \times (5 + 5 + 5).
```

 $376 = 5 \times 5 \times (5 + 5 + 5) + 5/5.$

 $442 = 5 \times 5 \times 5 + 5 + (5^5 - 5)/(5 + 5)$.

```
507 = ((5+5)/5)^{(5+5-5/5)} - 5.
443 = 555 - (555 + 5)/5.
                                                                                                          573 = 5 - 55 + (5^5 - 5 - 5)/5.
444 = (5 - 5/5) \times 555/5.
                                                    508 = (5^5 - 555 - 5)/5 - 5.
                                                                                                          574 = 5 - 55 + (5^5 - 5)/5.
445 = 555 - 55 - 55.
                                                    509 = (5^5 - 555)/5 - 5.
                                                                                                          575 = 5 - 55 + 5^{5}/5.
446 = 5 + (55/5 + 5 + 5)^{((5+5)/5)}.
                                                    510 = 5 \times 5 \times (5 \times 5 - 5) + 5 + 5.
                                                                                                          576 = 5 - 55 + (5^5 + 5)/5.
447 = (5^5 + 5 - 5/5)/(5 + (5+5)/5).
                                                    511 = 555 - 55 + 55/5.
                                                                                                          577 = 5 - 55 + (5^5 + 5 + 5)/5.
                                                    512 = ((5+5)/5)^{(5+5-5/5)}.
448 = (5 - 5/5) \times (555 + 5)/5.
                                                                                                         578 = 5 \times 5 + 555 - (5 + 5)/5.
449 = 5 + (5 - 5/5) \times 555/5.
                                                    513 = (5^5 - 555 - 5)/5.
                                                                                                         579 = 5 \times 5 + 555 - 5/5.
                                                    514 = (5^5 - 555)/5.
450 = (5+5) \times (55-5-5).
                                                                                                          580 = 5 \times 5 + 555.
451 = (5+5) \times (55-5-5) + 5/5.
                                                    515 = 5^5/5 - 55 - 55.
                                                                                                          581 = 5 \times 5 + 555 + 5/5.
                                                    516 = (5^5 + 5)/5 - 55 - 55.
452 = (5+5) \times (55-5-5) + (5+5)/5.
                                                                                                          582 = 5 \times 5 + 555 + (5 + 5)/5.
453 = 5 + (5 - 5/5) \times (555 + 5)/5.
                                                    517 = 5 + ((5+5)/5)^{(5+5-5/5)}.
                                                                                                          583 = 55 \times (55 - (5 + 5)/5)/5.
454 = 5 + 5 + (5 - 5/5) \times 555/5.
                                                    518 = 5 + (5^5 - 555 - 5)/5.
                                                                                                          584 = 555 + 5 \times 5 + 5 - 5/5.
                                                    519 = 5 + (5^5 - 555)/5.
455 = (5+5) \times (55-5-5) + 5.
                                                                                                          585 = 555 + 5 \times 5 + 5.
                                                    520 = (5^5 - 5)/(5 + 5/5)
456 = (5+5) \times (55-5-5) + 5 + 5/5.
                                                                                                          586 = 555 + 5 \times 5 + 5 + 5/5.
457 = ((5+5)/5)^{(5+5-5/5)} - 55.
                                                    521 = (5^5 + 5/5)/(5 + 5/5).
                                                                                                          587 = 555 + ((5+5)/5)^5.
                                                    522 = 5 + 5 + ((5+5)/5)^{(5+5-5/5)}.
458 = (5 \times 5 \times 5 \times 55 - 5)/(5 + 5 + 5).
                                                                                                          588 = 5 \times 55 + (5^5 + 5)/(5 + 5).
459 = (5^5 - 555)/5 - 55.
                                                    523 = 555 - ((5+5)/5)^5.
                                                                                                          589 = (5^5 - 55)/5 - 5 \times 5.
460 = (5+5) \times (55-5-5) + 5 + 5.
                                                    524 = 5 + 5 + (5^5 - 555)/5.
                                                                                                          590 = 555 + 5 \times 5 + 5 + 5.
                                                    525 = 5 \times (5 \times (5 \times 5 - 5) + 5).
                                                                                                          591 = 555 + 5 \times 5 + 55/5.
461 = (5+5) \times (55-5-5) + 55/5.
                                                    526 = 5 + (5^5 + 5/5)/(5 + 5/5).
462 = 55 \times (((5+5)/5)^5 + 5 + 5)/5.
                                                                                                          592 = 555 + 5 + ((5 + 5)/5)^5.
                                                                                                          593 = 5^5/5 - ((5+5)/5)^5.
463 = 5 \times (5 \times 5 + 5) + (5^5 + 5)/(5 + 5).
                                                    527 = 555 - 5 \times 5 - 5 + (5 + 5)/5.
                                                    528 = 555 + 5 - ((5+5)/5)^5.
                                                                                                          594 = 55 \times (55 - 5/5)/5.
464 = (5 - 5/5) \times (5 + 555/5).
465 = 5 \times (5 \times 5 \times 5 - ((5+5)/5)^5).
                                                    529 = 555 - 5 \times 5 - 5/5.
                                                                                                          595 = 5^5/5 - 5 \times 5 - 5.
466 = (5^5 + 5)/5 - 5 \times ((5 + 5)/5)^5.
                                                    530 = 555 - 5 \times 5.
                                                                                                          596 = (5^5 + 5)/5 - 5 \times 5 - 5.
                                                                                                          597 = (5^5 + 5 + 5)/5 - 5 \times 5 - 5.
467 = 5 \times (5 \times 5 + 5) + 5 + (5^5 - 1)
                                                    531 = 555 - 5 \times 5 + 5/5.
                                                                                                          598 = 5 \times (5 \times 5 \times 5 - 5) - (5 + 5)/5.
5)/(5+5).
                                                    532 = 555 - 5 \times 5 + (5 + 5)/5.
468 = (5 - 5/5) \times (5 + (555 + 5)/5).
                                                    533 = 555 - (55 + 55)/5.
                                                                                                          599 = 5 \times (5 \times 5 \times 5 - 5) - 5/5.
469 = (5 - 5/5)^5 - 555.
                                                    534 = 555 - 5 \times 5 + 5 - 5/5.
                                                                                                          600 = 5 \times (5 \times 5 \times 5 - 5).
                                                                                                          601 = (5^5 + 5)/5 - 5 \times 5.
470 = 5 \times (5 \times (5 \times 5 - 5) - 5) - 5.
                                                    535 = 555 - 5 \times 5 + 5.
                                                    536 = 555 - 5 \times 5 + 5 + 5/5.
                                                                                                          602 = (5^5 + 5 + 5)/5 - 5 \times 5.
471 = 5 \times (5 \times (5 \times 5 - 5) - 5) - 5 + 5/5.
472 = 55 + (5^{5} + 5^{5} + 5)/(5 + 5 + 5).
                                                    537 = 555 - 5 \times 5 + 5 + (5 + 5)/5.
                                                                                                          603 = (5^5 - 55 - 55)/5.
473 = 55 \times (55 - (55 + 5)/5)/5.
                                                    538 = 555 - 5 - (55 + 5)/5.
                                                                                                          604 = (55 \times 55 - 5)/5.
474 = 5 + (5 - 5/5)^5 - 555.
                                                    539 = 555 - 5 - 55/5.
                                                                                                          605 = 55 \times 55/5.
475 = 5 \times (5 \times (5 \times 5 - 5) - 5).
                                                    540 = (5+5) \times (55-5/5).
                                                                                                          606 = (55 \times 55 + 5)/5.
476 = 5 \times (5 \times (5 \times 5 - 5) - 5) + 5/5.
                                                    541 = (5+5) \times (55-5/5) + 5/5.
                                                                                                          607 = (55 \times 55 + 5 + 5)/5.
                                                    542 = 555 - ((55 + 5 + 5)/5).
                                                                                                          608 = (5^5 - 55 - 5)/5 - 5.
477 = 5 \times (5 \times (5 \times 5 - 5) - 5) +
                                                                                                         609 = (5^5 - 55)/5 - 5.
                                                    543 = 555 - (55 + 5)/5.
(5+5)/5.
                                                    544 = 555 - 55/5.
478 = 5 + 55 \times (55 - (55 + 5)/5)/5.
                                                                                                         610 = 555 + 55.
                                                    545 = 555 - 5 - 5.
479 = (5 - 5/5)^5 + 5 + 5 - 555.
                                                                                                          611 = 5 + (55 \times 55 + 5)/5.
                                                                                                          612 = (5^5 - 55 - 5 - 5)/5.
480 = 5 \times (5 \times (5 \times 5 - 5) - 5) + 5.
                                                    546 = 555 - 5 - 5 + 5/5.
481 = (5555 - 5^5)/5 - 5.
                                                                                                          613 = (5^5 - 55 - 5)/5.
                                                    547 = 555 - 5 - 5 + (5 + 5)/5.
482 = (55555 - 5^5 + 5)/5 - 5.
                                                    548 = 555 - 5 - (5 + 5)/5.
                                                                                                          614 = (5^5 - 55)/5.
483 = 5 \times 55 + (5^5 - 5)/(5 + 5 + 5).
                                                    549 = 555 - 5 - 5/5.
                                                                                                          615 = 5^5/5 - 5 - 5.
484 = 55 \times (55 - 55/5)/5.
                                                    550 = 555 - 5.
                                                                                                          616 = (5^5 + 5)/5 - 5 - 5.
485 = 5 \times (5 \times (5 \times 5 - 5) - 5) + 5 + 5.
                                                    551 = 555 - 5 + 5/5.
                                                                                                          617 = (5^5 + 5 + 5)/5 - 5 - 5.
486 = (5555 - 5^5)/5.
                                                    552 = 555 - 5 + (5 + 5)/5.
                                                                                                          618 = (5^5 - 5 - 5)/5 - 5.
                                                                                                          619 = (5^5 - 5)/5 - 5.
487 = (5555 + 5 - 5^5)/5.
                                                    553 = 555 - (5 + 5)/5.
                                                    554 = 555 - 5/5.
488 = (5 - 5/5) \times (555 + 55)/5.
                                                                                                          620 = 5^5/5 - 5.
489 = 555 - 55 - 55/5.
                                                    555 = 555.
                                                                                                          621 = (5^5 + 5)/5 - 5.
490 = 555 - 55 - 5 - 5.
                                                    556 = 555 + 5/5.
                                                                                                          622 = (5^5 + 5 + 5)/5 - 5.
491 = 5 + (5555 - 5^5)/5.
                                                    557 = 555 + (5 + 5)/5.
                                                                                                          623 = (5^5 - 5 - 5)/5.
                                                                                                          624 = (5^5 - 5)/5.
492 = 5 + (5555 - 5^5 + 5)/5.
                                                    558 = 555 + 5 - (5 + 5)/5.
                                                                                                          625 = 5^{5}/5.
                                                    559 = 555 + 5 - 5/5.
493 = 555 - 55 - 5 - (5 + 5)/5.
                                                                                                          626 = (5^5 + 5)/5.
494 = 555 - 55 - 5 - 5/5.
                                                    560 = 555 + 5.
495 = 555 - 55 - 5.
                                                    561 = 555 + 5 + 5/5.
                                                                                                          627 = (5^5 + 5 + 5)/5.
                                                                                                         628 = 5 + (5^5 - 5 - 5)/5.
496 = 555 - 55 - 5 + 5/5.
                                                    562 = 555 + 5 + (5 + 5)/5.
                                                                                                         629 = 5 + (5^5 - 5)/5.
497 = 555 - 55 - 5 + (5 + 5)/5.
                                                    563 = 555 + 5 + 5 - (5 + 5)/5.
498 = 555 - 55 - (5 + 5)/5.
                                                    564 = 555 + 5 + 5 - 5/5.
                                                                                                         630 = 5 + 5^{5}/5.
499 = 555 - 55 - 5/5.
                                                                                                         631 = 5 + (5^5 + 5)/5.
                                                    565 = 555 + 5 + 5.
                                                                                                         632 = 5 + (5^5 + 5 + 5)/5.
500 = 555 - 55.
                                                    566 = 555 + 55/5.
                                                                                                         633 = 5 + 5 + (5^5 - 5 - 5)/5.
                                                    567 = 555 + (55 + 5)/5.
501 = 5 \times 5 \times (5 \times 5 - 5) + 5/5.
                                                                                                         634 = 5 + 5 + (5^5 - 5)/5.
502 = 555 - 55 + (5 + 5)/5.
                                                    568 = (5^5 - 5 - 5)/5 - 55.
503 = (5^5 - 555 - 55)/5.
                                                    569 = (5^5 - 5)/5 - 55.
                                                                                                         635 = 5 + 5 + 5^{5}/5.
                                                    570 = 5^5/5 - 55.
504 = 555 - 55 + 5 - 5/5.
                                                                                                         636 = (55 + 5^5)/5.
505 = 5 \times 5 \times (5 \times 5 - 5) + 5.
                                                    571 = (5^5 + 5)/5 - 55.
                                                                                                          637 = (55 + 5^5 + 5)/5.
506 = 5 \times 5 \times (5 \times 5 - 5) + 5 + 5/5.
                                                    572 = (5^5 + 5 + 5)/5 - 55.
                                                                                                          638 = (55 + 5^5 + 5 + 5)/5.
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639 = 5 + 5 + 5 + (5^5 - 5)/5.
640 = 5 + 5 + 5 + 5^{5}/5.
641 = 5 + (55 + 5^5)/5.
642 = 5 + (55 + 5^5 + 5)/5.
643 = 5 + (55 + 5^5 + 5 + 5)/5.
644 = 5 \times 5 - 5 + (5^5 - 5)/5.
645 = 5 \times 5 - 5 + 5^5/5.
646 = 5 + 5 + (55 + 5^5)/5.
647 = (55 + 55 + 5^5)/5.
648 = 5 \times 5 + (5^5 - 5 - 5)/5.
649 = 5 \times 5 + (5^5 - 5)/5.
650 = 5 \times (5 \times 5 \times 5 + 5).
651 = 5 \times 5 + (5^5 + 5)/5.
652 = 5 \times 5 + (5^5 + 5 + 5)/5.
653 = 5 + 5 \times 5 + (5^5 - 5 - 5)/5.
654 = 5 + 5 \times 5 + (5^5 - 5)/5.
655 = 5 + 5 \times 5 + 5^{5}/5.
656 = 5 + 5 \times 5 + (5^5 + 5)/5.
657 = 5^5/5 + ((5+5)/5)^5.
658 = (5^5 + 5)/5 + ((5 + 5)/5)^5.
659 = (55 \times (55 + 5) - 5)/5.
660 = 55 \times (55 + 5)/5.
661 = 5 \times 5 + (55 + 5^5)/5.
662 = 5 + ((5+5)/5)^5 + 5^5/5.
663 = 5 + (5^5 + 5)/5 + ((5 + 5)/5)^5.
664 = 5 + (55 \times (55 + 5) - 5)/5.
665 = 5 + 55 \times (55 + 5)/5.
666 = 555 + 555/5.
667 = 555 + (555 + 5)/5.
668 = 55 + (5^5 - 55 - 5)/5.
669 = 55 + (5^5 - 55)/5.
670 = 55 - 5 - 5 + 5^5/5.
671 = 5 + 555 + 555/5.
672 = (5 + 5/5) \times (555 + 5)/5.
673 = 55 - 5 + (5^5 - 5 - 5)/5.
674 = 55 - 5 + (5^5 - 5)/5.
675 = 5 \times (5 \times 5 \times 5 + 5 + 5).
676 = 55 - 5 + (5^5 + 5)/5.
677 = 55 - 5 + (5^5 + 5 + 5)/5.
678 = 55 + (5^5 - 5 - 5)/5.
679 = 55 + (5^5 - 5)/5.
680 = 55 + 5^{5}/5.
681 = 55 + (5^5 + 5)/5.
682 = 55 + (5^5 + 5 + 5)/5.
683 = 55 + 5 + (5^5 - 5 - 5)/5.
684 = 55 + 5 + (5^5 - 5)/5.
685 = 55 + 5 + 5^{5}/5.
686 = 55 + 5 + (5^5 + 5)/5.
687 = 55 + 5 + (5^5 + 5 + 5)/5.
688 = (55 \times 5 \times 5 \times 5 + 5)/(5 + 5).
689 = 55 + 5 + 5 + (5^5 - 5)/5.
690 = 55 + 5 + 5 + 5^5/5.
691 = 55 + (55 + 5^5)/5.
692 = 55 + (55 + 5^5 + 5)/5.
693 = 5 + (5 \times 5 \times 5 \times 55 + 5)/(5 + 5).
694 = 55 + 5 + 5 + 5 + (5^5 - 5)/5.
695 = 5 \times 5 \times (5 \times 5 + 5) - 55.
696 = 55 + 5 + (55 + 5^5)/5.
697 = 55 + 5 + (55 + 5^5 + 5)/5
698 = 5 \times (5+5+5) + (5^5-5-5)/5.
699 = 5 \times (5 + 5 + 5) + (5^5 - 5)/5.
700 = 5 \times (5 \times 5 \times 5 + 5 + 5 + 5).
701 = 5 \times (5 + 5 + 5) + (5^5 + 5)/5.
702 = 55 + (55 + 55 + 5^{5})/5.
703 = 5 \times 5 + 55 + (5^5 - 5 - 5)/5.
704 = 5 \times 5 + 55 + (5^5 - 5)/5.
```

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705 = 5 \times 5 + 55 + 5^{5}/5.
706 = 5 \times 5 + 55 + (5^5 + 5)/5.
707 = 5 \times 5 + 55 + (5^5 + 5 + 5)/5.
708 = (55 + 5) \times (55 + 5 - 5/5)/5.
709 = 5 \times 5 + 55 + 5 + (5^5 - 5)/5.
710 = 5 \times 5 + 55 + 5 + 5^{5}/5.
711 = (555 + 5^5)/5 - 5 \times 5.
712 = 55 + ((5+5)/5)^5 + 5^5/5.
713 = (55 \times (55 + 5 + 5) - 5 - 5)/5.
714 = (55 \times (55 + 5 + 5) - 5)/5.
715 = 55 \times (55 + 5 + 5)/5.
716 = (55 \times (55 + 5 + 5) + 5)/5.
717 = (55 \times (55 + 5 + 5) + 5 + 5)/5.
718 = 5 \times 5 \times (5 \times 5 + 5) - ((5 + 5)/5)^5.
719 = ((55+5)^{((5+5)/5)} - 5)/5.
720 = (5 \times 5 \times 5 - 5) \times (5 + 5/5).
721 = ((55+5)^{((5+5)/5)} + 5)/5.
722 = ((55+5)^{((5+5)/5)} + 5 + 5)/5.
723 = 5 \times (5 \times 5 - 5) + (5^5 - 5 - 5)/5.
724 = 5 \times (5 \times 5 - 5) + (5^5 - 5)/5.
725 = 5 \times (5 \times (5 \times 5 + 5) - 5).
726 = 5 \times (5 \times (5 \times 5 + 5) - 5) + 5/5.
727 = (555 + 5^5 + 5)/5 - 5 - 5.
728 = (55 + 5/5) \times (55 + 5 + 5)/5.
729 = (5 - (5+5)/5)^{(5+5/5)}.
730 = 5 + 5 \times (5 \times (5 \times 5 + 5) - 5).
731 = (555 + 5^5)/5 - 5.
732 = (555 + 5^5 + 5)/5 - 5.
733 = 55 + 55 + (5^5 - 5 - 5)/5.
734 = 5 + (5 - (5 + 5)/5)^{(5+5/5)}.
735 = 55 + 55 + 5^{5}/5.
736 = (555 + 5^5)/5.
737 = (555 + 5^5 + 5)/5.
738 = (555 + 5^5 + 5 + 5)/5.
739 = 5 \times 5 \times 5 + (5^5 - 55)/5.
740 = 5 \times 5 \times (5 \times 5 + 5) - 5 - 5.
741 = 5 + (555 + 5^5)/5
742 = 5 + (555 + 5^5 + 5)/5.
743 = 5 + (555 + 5^5 + 5 + 5)/5.
744 = 5 \times 5 \times 5 - 5 + (5^5 - 5)/5.
745 = 5 \times 5 \times (5 \times 5 + 5) - 5.
746 = 5 + 5 + (555 + 5^5)/5.
747 = (555 + 55 + 5^5)/5.
748 = 5 \times 5 \times 5 + (5^5 - 5 - 5)/5.
749 = 5 \times 5 \times 5 + (5^5 - 5)/5.
750 = 5 \times 5 \times (5 \times 5 + 5).
751 = 5 \times 5 \times (5 \times 5 + 5) + 5/5.
752 = 5 \times 5 \times 5 + (5^5 + 5 + 5)/5.
753 = 5 \times 5 \times 5 + 5 + (5^5 - 5 - 5)/5.
754 = 5 \times 5 \times 5 + 5 + (5^5 - 5)/5.
755 = 5 + 5 \times 5 \times (5 \times 5 + 5).
756 = 5 + 5 \times 5 \times (5 \times 5 + 5) + 5/5.
757 = 5 + 5 \times 5 \times (5 \times 5 + 5) + (5 + 5)/5.
758 = 5 \times 5 \times 5 + 5 + 5 + (5^5 - 5 - 5)/5.
759 = 5 \times 5 \times 5 + 5 + 5 + (5^5 - 5)/5.
760 = 5 + 5 + 5 \times 5 \times (5 \times 5 + 5).
761 = 5 \times 5 + (555 + 5^5)/5.
762 = 5 \times 5 + (555 + 5^5 + 5)/5.
763 = 555 + (5^5 - 5)/(5 + 5 + 5).
764 = 5 \times (5 \times 5 + 5) + (5^5 - 55)/5.
765 = 5 + 5 + 5 + 5 \times 5 \times (5 \times 5 + 5).
766 = 5 + 5 \times 5 + (555 + 5^5)/5.
767 = 5 + 5 \times 5 + (555 + 5^5 + 5)/5.
768 = (5 \times 5 - 5/5) \times ((5+5)/5)^5.
769 = (5 - 5/5)^5 - 5 \times (55 - 5) - 5.
770 = 55 \times (5 + 5 + 5 - 5/5).
```

```
772 = 555 \times (5 + (5 + 5)/5)/5 - 5.
773 = 5 + (5 \times 5 - 5/5) \times ((5 + 5)/5)^5.
774 = (5 - 5/5)^5 - 5 \times (55 - 5).
775 = 5 \times (5 \times (5 \times 5 + 5) + 5).
776 = 5 \times (5 \times (5 \times 5 + 5) + 5) + 5/5.
777 = 555 \times (5 + (5 + 5)/5)/5.
778 = (5^5 - 5)/(5 - 5/5) - (5 + 5)/5.
779 = (5^5 - 5)/(5 - 5/5) - 5/5.
780 = (5^5 - 5)/(5 - 5/5).
781 = (5^5 - 5/5)/(5 - 5/5).
782 = 5 + 555 \times (5 + (5 + 5)/5)/5.
783 = (5^5 - 5/5)/(5 - 5/5) + (5 + 5)/5.
784 = (5^5 + 55/5)/(5 - 5/5).
785 = 5 + (5^5 - 5)/(5 - 5/5)
786 = 5 + (5^5 - 5/5)/(5 - 5/5)
787 = 5 + 5 + 555 \times (5 + (5 + 5)/5)/5.
788 = 5 + (5^5 + 5 + (5 + 5)/5)/(5 - 5/5).
789 = 5 + (5^5 + 55/5)/(5 - 5/5).
790 = 5 + 5 + (5^5 - 5)/(5 - 5/5).
791 = 55 + (555 + 5^5)/5.
792 = 55 + (555 + 5^5 + 5)/5.
793 = 555 - 5 + (5 - (5 + 5)/5)^5
794 = 5 \times 5 \times ((5+5)/5)^5 - 5 - 5/5.
795 = (55 + 5^5)/(5 - 5/5).
796 = 55 + 5 + (555 + 5^5)/5.
797 = 55 + 5 + (555 + 5^5 + 5)/5.
798 = 555 + (5 - (5 + 5)/5)^5.
799 = 5 \times 5 \times ((5+5)/5)^5 - 5/5.
800 = 5 \times 5 \times ((5+5)/5)^5.
801 = 5 \times 5 \times ((5+5)/5)^5 + 5/5.
802 = 5 \times 5 \times ((5+5)/5)^5 + (5+5)/5.
803 = 5 + 555 + (5 - (5 + 5)/5)^5.
804 = 5 + 5 \times 5 \times ((5+5)/5)^5 - 5/5.
805 = 5 + 5 \times 5 \times ((5+5)/5)^5
806 = 5 + 5 \times 5 \times ((5+5)/5)^5 + 5/5.
807 = 5 + 5 \times 5 \times ((5+5)/5)^5 + (5+5)^5
5)/5.
808 = 555 + 5 + 5 + (5 - (5 + 5)/5)^5.
809 = 55 \times (5 + 5 + 5) - 5 - 55/5.
810 = (5 + 5 + 5) \times (55 - 5/5).
811 = (5+5+5) \times (55-5/5) + 5/5.
812 = (5 + (5 + 5)/5) \times (5 + 555/5).
813 = 55 \times (5 + 5 + 5) - (55 + 5)/5.
814 = 55 \times (5 + 5 + 5) - 55/5.
815 = 55 \times (5 + 5 + 5) - 5 - 5
816 = 55 \times (5+5+5) - 5 - 5 + 5/5.
817 = 55 \times (5 + 5 + 5) - 5 - 5 + (5 + 5)
5)/5.
818 = 55 \times (5+5+5) - 5 - (5+5)/5.
819 = 55 \times (5 + 5 + 5) - 5 - 5/5.
820 = 55 \times (5 + 5 + 5) - 5.
821 = 55 \times (5 + 5 + 5) - 5 + 5/5.
822 = 55 \times (5+5+5) - 5 + (5+5)/5.
823 = 55 \times (5 + 5 + 5) - (5 + 5)/5.
824 = 55 \times (5 + 5 + 5) - 5/5.
825 = 55 \times (5 + 5 + 5).
826 = 55 \times (5 + 5 + 5) + 5/5.
827 = 55 \times (5 + 5 + 5) + (5 + 5)/5.
828 = 55 \times (5+5+5) + 5 - (5+5)/5.
829 = 55 \times (5 + 5 + 5) + 5 - 5/5.
830 = 55 \times (5 + 5 + 5) + 5.
831 = 55 \times (5 + 5 + 5) + 5 + 5/5.
832 = (5 \times 5 + 5/5) \times ((5 + 5)/5)^5.
833 = 5^5/5 + (5^5 - 5)/(5 + 5 + 5).
834 = 55 \times (5+5+5) + 5 + 5 - 5/5.
```

 $771 = 55 \times (5 + 5 + 5 - 5/5) + 5/5.$

| $835 = 55 \times (5+5+5) + 5 + 5.$ |
|--|
| $836 = 55 \times (5+5+5) + 55/5.$ |
| $837 = 55 \times (5+5+5) + (55+5)/5.$ |
| $838 = 5 + 5^{5}/5 + (5^{5} - 5)/(5 + 5 + 5).$ |
| $839 = (5+5+5) \times (55+5/5) - 5/5.$ |
| $840 = (5+5+5) \times (55+5/5).$ |
| $841 = (5 \times 5 + 5 - 5/5)^{((5+5)/5)}.$ |
| $842 = 5 + 5 + (5 \times 5 + 5/5) \times ((5 +$ |
| $5)/5)^5$. |
| $843 = 5^{5}/5 - 5 \times 5 + (5 - (5 + 5)/5)^{5}.$ |
| $844 = 5 \times 55 - 55 + (5^5 - 5)/5.$ |
| $845 = (5+5+5) \times (55+5/5) + 5.$ |
| $846 = (5 \times 5 + 5 - 5/5)^{((5+5)/5)} + 5.$ |
| $847 = (555 + 555 + 5^5)/5.$ |
| $848 = (5 + 55/5) \times (55 - (5 + 5)/5).$ |
| $849 = 5 \times 5 + 55 \times (5 + 5 + 5) - 5/5.$ |
| $850 = 5 \times (5 \times (5 \times 5 + 5 + 5) - 5).$ |
| $851 = 5 \times 5 + 55 \times (5 + 5 + 5) + 5/5.$ |
| $852 = 5 + (555 + 555 + 5^5)/5.$ |
| $853 = 5 + (55/5 + 5) \times (55 - (5 + 5)/5).$ |
| $854 = 555 + 5 \times (55 + 5) - 5/5.$ |
| $855 = 555 + 5 \times (55 + 5)$. |
| $856 = 555 + 5 \times (55 + 5) + 5/5.$ |
| $857 = 55 \times (5+5+5) + ((5+5)/5)^5.$ |
| $858 = 5^{5}/5 + (5 - (5 + 5)/5)^{5} - 5 - 5.$ |
| $859 = (5 + 55/5) \times (55 - 5/5) - 5.$ |
| $860 = 5 + 5 \times (55 + 5) + 555.$ |
| $861 = 5 \times 5 \times 5 + (555 + 5^5)/5.$ |
| $862 = 555 + (5^5 - 55)/(5 + 5).$ |
| $863 = 5^5/5 + (5 - (5 + 5)/5)^5 - 5.$ |
| $864 = (5 + 55/5) \times (55 - 5/5).$ |
| $865 = 5 \times 5 \times (5 \times 5 + 5 + 5) - 5 - 5.$ |
| $866 = 5 \times 5 \times 5 + 5 + (555 + 5^5)/5.$ |
| $867 = 555 + (5^5 - 5)/(5 + 5).$ |
| $868 = 5^{5}/5 + (5 - (5 + 5)/5)^{5}.$ |
| $869 = 5 + (5 + 55/5) \times (55 - 5/5).$ |
| $870 = 5 \times 5 \times (5 \times 5 + 5 + 5) - 5.$ |
| $871 = 5 \times 5 \times (5 \times 5 + 5 + 5) - 5 + 5/5.$ |
| $872 = 555 + 5 + (5^5 - 5)/(5 + 5).$ |
| $872 = 555 + 5 + (5^5 - 5)/(5 + 5).$ $873 = 5^5/5 + 5 + (5 - (5 + 5)/5)^5.$ |
| $874 = 5 \times 5 \times (5+5) + (5^5 - 5)/5.$ |
| $875 = 5 \times 5 \times (5 \times 5 + 5 + 5).$ |
| $876 = 5 \times 5 \times (5 \times 5 + 5 + 5) + 5/5.$ |
| $877 = 5 \times 5 \times (5 \times 5 + 5 + 5) + (5 + 5)/5.$ |
| $878 = 55 \times (5 + 55/5) - (5 + 5)/5.$ |
| $879 = 55 \times (5 + 55/5) - 5/5.$ |
| $880 = 55 \times (5 + 55/5).$ |
| $881 = 55 \times (5 + 55/5) + 5/5.$ |
| $882 = 55 \times (5 + 55/5) + (5 + 5)/5.$ |
| $883 = 55 \times (5 + 55/5) + 5 - (5 + 5)/5.$ |
| $884 = 55 \times (5 + 55/5) + 5 - 5/5.$ |
| $885 = 55 \times (5 + 55/5) + 5.$ |
| $886 = 55 \times (5 + 55/5) + 5 + 5/5.$ |
| $887 = 55 \times (5 + 55/5) + 5 + (5 + 5)/5.$ |
| $888 = 5 \times 55 + (5^5 - 55 - 5)/5.$ |
| $889 = 5 \times 55 + (5^5 - 55)/5.$ |
| $890 = 5 + 5 + 55 \times (5 + 55/5).$ |
| |

```
891 = 5 \times 55 - 5 - 5 + (5^5 + 5)/5.
892 = 5 \times 5 + 555 + (5^5 - 5)/(5 + 5).
893 = 5 \times 55 - 5 + (5^5 - 5 - 5)/5.
894 = 5 \times 55 - 5 + (5^5 - 5)/5.
895 = 5 \times 55 - 5 + 5^{5}/5.
896 = 5 \times 55 - 5 + (5^5 + 5)/5.
897 = 5 \times 55 - 5 + (5^5 + 5 + 5)/5.
898 = 5 \times 55 + (5^5 - 5 - 5)/5.
899 = 5 \times 55 + (5^5 - 5)/5.
900 = 5 \times (5 \times 5 \times 5 + 55).
901 = 5 \times 55 + (5^5 + 5)/5.
902 = 5 \times 55 + (5^5 + 5 + 5)/5.
903 = 5 \times 55 + 5 + (5^5 - 5 - 5)/5.
904 = 5 \times 55 + 5 + (5^5 - 5)/5.
905 = 5 \times 55 + 5 + 5^{5}/5.
906 = 5 \times 55 + 5 + (5^5 + 5)/5.
907 = 5 \times 55 + 5 + (5^5 + 5 + 5)/5.
908 = (5 - 5/5)^5 - 5 - 555/5.
909 = 5 \times 55 + 5 + 5 + (5^5 - 5)/5.
910 = 5 \times 55 + 5 + 5 + 5^{5}/5.
911 = 5 \times 55 + (55 + 5^5)/5.
912 = 5 \times 55 + (55 + 5^5 + 5)/5.
913 = (5 - 5/5)^5 - 555/5.
914 = (5 - 5/5)^5 - 55 - 55.
915 = (5 + 5 + 5) \times (55 + 5 + 5/5).
916 = 5 \times 55 + 5 + (55 + 5^{5})/5.
917 = 5 \times 55 + 5 + (55 + 5^5 + 5)/5.
918 = (5 - 5/5)^5 - 555/5 + 5.
919 = (5 - 5/5)^5 - 55 - 55 + 5.
920 = 5 \times (55 + 5) - 5 + 5^{5}/5.
921 = 5 \times (55 + 5) - 5 + (5^5 + 5)/5.
922 = 555 + 55 + (5^5 - 5)/(5 + 5).
923 = 5 \times (55 + 5) + (5^5 - 5 - 5)/5.
924 = (5 - 5/5)^5 - 5 \times (5 \times 5 - 5).
925 = 5 \times (5 \times 5 \times 5 + 55 + 5).
926 = 5 \times (55 + 5) + (5^5 + 5)/5.
927 = 5 \times (55 + 5) + (5^5 + 5 + 5)/5.
928 = ((5+5)/5)^5 \times (5 \times 5 + 5 - 5/5).
929 = 5 - 5 \times (5 \times 5 - 5) + (5 - 5/5)^{5}.
930 = 5 + 5 \times (55 + 5) + 5^{5}/5.
931 = 5 + 5 \times (55 + 5) + (5^5 + 5)/5.
932 = 5^5/5 + (5^5 - 55)/(5 + 5).
933 = 5^5/5 + (5^5 + 5)/(5 + 5) - 5.
934 = 55 \times (5 + (55 + 5)/5) - 5/5.
935 = 55 \times (5 + (55 + 5)/5).
936 = 55 \times (5 + (55 + 5)/5) + 5/5.
937 = (5^5 - 5)/(5 + 5) + 5^5/5.
938 = (5^5 + 5)/(5 + 5) + 5^5/5.
939 = (5^5 + 5)/5 + (5^5 + 5)/(5 + 5).
940 = 55 \times (5 + (55 + 5)/5) + 5.
941 = 55 \times (5 + (55 + 5)/5) + 5 + 5/5.
942 = (5^5 - 5)/(5 + 5) + 5^5/5 + 5.
943 = (5^5 + 5)/(5 + 5) + 5^5/5 + 5.
944 = (5 - 5/5)^5 - 5 \times 5 - 55.
945 = 5 \times 5 \times (55 + 5) - 555.
946 = 55 \times (555/5 - 5 \times 5)/5.
947 = (5^5 - 5)/(5 + 5) + 5^5/5 + 5 + 5.
```

```
948 = (5^5 + 5)/(5 + 5) + 5^5/5 + 5 + 5.
949 = (5 - 5/5)^5 - 5 \times (5 + 5 + 5).
950 = (5+5) \times (5 \times (5 \times 5 - 5) - 5).
951 = (5+5) \times (5 \times (5 \times 5-5) -
5) + 5/5.
952 = (5-5/5) \times ((5-(5+5)/5)^5 - 5).
953 = 55 + 5 \times 55 + (5^5 - 5 - 5)/5.
954 = (5-5/5)^5 + 5 - 5 \times (5+5+5).
955 = 5 + (5+5) \times (5 \times (5 \times 5 - 5) - 5).
956 = 55 + 5 \times 55 + (5^5 + 5)/5.
957 = 55 \times (55 + ((5+5)/5)^5)/5.
958 = (5 - 5/5)^5 - 55 - 55/5.
959 = (5 - 5/5)^5 - 55 - 5 - 5.
960 = (5 \times 5 + 5) \times ((5 + 5)/5)^5.
961 = (5 \times 5 + 5 + 5/5)^{((5+5)/5)}.
962 = (5 \times 5 + 5/5) \times (5 + ((5+5)/5)^5).
963 = (5 - 5/5)^5 - 55 - 5 - 5/5.
964 = (5 - 5/5)^5 - 55 - 5.
965 = 5 + (5 \times 5 + 5) \times ((5 + 5)/5)^5.
966 = 5 + (5 \times 5 + 5 + 5/5)^{((5+5)/5)}.
967 = (5 - 5/5)^5 - (55 + (5 + 5)/5).
968 = (5 - 5/5)^5 - 55 - 5/5.
969 = (5 - 5/5)^5 - 55.
970 = (5 - 5/5)^5 - 55 + 5/5.
971 = (5 - 5/5)^{(5+5/5)} - 5^5.
972 = (5 - 5/5) \times (5 - (5 + 5)/5)^5.
973 = (5 - 5/5)^5 + 5 - 55 - 5/5.
974 = (5 - 5/5)^5 + 5 - 55.
975 = 5 \times (5 \times 5 \times (5 + 5) - 55).
976 = 5 - 5^5 + (5 - 5/5)^{(5+5/5)}.
977 = 5 + (5 - 5/5) \times (5 - (5 + 5)/5)^5.
978 = (5 - 5/5)^5 + 5 + 5 - 55 - 5/5.
979 = (5 - 5/5)^5 + 5 + 5 - 55.
980 = 5 + 5 \times (5 \times 5 \times (5 + 5) - 55).
981 = 5555/5 - 5 \times 5 \times 5 - 5.
982 = (5 - 5/5) \times (5 - (5 + 5)/5)^5 +
5 + 5.
983 = (5 - 5/5)^5 - 55/5 - 5 \times 5 - 5.
984 = (5 - 5/5)^5 - 55 + 5 + 5 + 5.
985 = 5 + 5 \times (5 \times 5 \times (5+5) - 55) + 5.
986 = 5555/5 - 5 \times 5 \times 5.
987 = (5 - 5/5)^5 - 5 - ((5 + 5)/5)^5.
988 = (5 - 5/5)^5 - 5 \times 5 - 55/5.
989 = (5 - 5/5)^5 - 5 \times 5 - 5 - 5.
990 = (5+5) \times (5 \times (5 \times 5 - 5) - 5/5).
991 = 5 + 5555/5 - 5 \times 5 \times 5.
992 = (5 - 5/5)^5 - ((5 + 5)/5)^5.
993 = (5 - 5/5)^5 - 5 \times 5 - 5 - 5/5.
994 = (5 - 5/5)^5 - 5 \times 5 - 5.
995 = 5 \times (5+5) \times (5 \times 5 - 5) - 5.
996 = 5 \times (5+5) \times (5 \times 5-5) - 5 + 5/5.
997 = (5 - 5/5)^5 - ((5 + 5)/5)^5 + 5.
998 = (5 - 5/5)^5 - 5 \times 5 - 5/5.
999 = (5 - 5/5)^5 - 5 \times 5.
1000 = 5 \times (5+5) \times (5 \times 5-5).
```

9. Representations Using Number 6

```
101 = 66 + 6 \times 6 - 6/6.
102 = 66 + 6 \times 6.
103 = 66 + 6 \times 6 + 6/6.
104 = (666 - 6)/6 - 6.
105 = 666/6 - 6.
```

```
106 = (666 + 6)/6 - 6.
107 = 6 \times (6 + 6 + 6) - 6/6.
108 = 6 \times (6 + 6 + 6).
109 = (666 - 6 - 6)/6.
110 = (666 - 6)/6.
```

```
111 = 666/6.
112 = (666 + 6)/6.
113 = (666 + 6 + 6)/6.
114 = 6 \times (6 + 6 + 6) + 6.
115 = 6 \times (6 + 6 + 6) + 6 + 6/6.
```

 $181 = 6 \times (6 \times 6 - 6) + 6/6.$

```
182 = 6 \times (6 \times 6 - 6) + (6 + 6)/6.
116 = 6 + (666 - 6)/6.
                                                                                                                   248 = 66 \times 66/(6 + 6 + 6) + 6.
117 = 6 + 666/6.
                                                         183 = 66 + 6 + 666/6.
                                                                                                                   249 = (6 \times 6/(6+6))(6-6/6) + 6.
118 = 6 + (666 + 6)/6.
                                                         184 = 66 + 6 + (666 + 6)/6.
                                                                                                                   250 = 6 \times (6 \times 6 + 6) - (6 + 6)/6.
119 = 6 + (666 + 6 + 6)/6.
                                                         185 = 6 \times (6 \times 6 - 6) + 6 - 6/6.
                                                                                                                   251 = 6 \times (6 \times 6 + 6) - 6/6.
120 = 6 \times (6 + 6 + 6) + 6 + 6.
                                                         186 = 6 \times (6 \times 6 - 6) + 6.
                                                                                                                   252 = 6 \times (6 \times 6 + 6).
121 = 66 \times 66/(6 \times 6).
                                                         187 = 6 \times (6 \times 6 - 6) + 6 + 6/6.
                                                                                                                   253 = 6 \times (6 \times 6 + 6) + 6/6.
122 = (666 + 66)/6.
                                                         188 = 6 \times (6 \times 6 - 6) + 6 + (6 + 6)/6.
                                                                                                                   254 = 6 \times (6 \times 6 + 6) + (6 + 6)/6.
                                                         189 = 66 + 6 + 6 + 666/6.
                                                                                                                   255 = 6 \times (6 \times 6 + 6) + 6 \times 6/(6 + 6).
123 = 6 + 6 + 666/6.
                                                                                                                   256 = ((6+6)/6)^{(6+(6+6)/6)}.
124 = 6 + 6 + (666 + 6)/6.
                                                         190 = (6 - 6/6) \times (6 \times 6 + (6 + 6)/6).
125 = 66 + 66 - 6 - 6/6.
                                                         191 = 6 \times (6 \times 6 - 6) + 66/6.
                                                                                                                   257 = 6 \times (6 \times 6 + 6) + 6 - 6/6.
                                                         192 = 6 \times (6 \times 6 - 6) + 6 + 6.
126 = 66 + 66 - 6.
                                                                                                                    258 = 6 \times (6 \times 6 + 6) + 6.
127 = 6 + 66 \times 66/(6 \times 6).
                                                         193 = 6 \times (6 \times 6 - 6) + 6 + 6 + 6/6.
                                                                                                                   259 = 6 \times (6 \times 6 + 6) + 6 + 6/6.
                                                         194 = 66 + ((6+6)/6)^{(6+6/6)}.
128 = ((6+6)/6)^{(6+6/6)}.
                                                                                                                   260 = 6 \times (6 \times 6 + 6) + 6 + (6 + 6)/6.
129 = 6 + 6 + 6 + 666/6.
                                                         195 = 6 \times (6 \times 66 - 6)/(6 + 6).
                                                                                                                   261 = 6 \times (6 \times 6 + 6) + 6 + 6 \times 6/(6 + 6).
                                                                                                                   262 = ((6+6)/6)^{(6+(6+6)/6)} + 6.
130 = 66 + ((6+6)/6)^6.
                                                         196 = 66 + 66 + ((6+6)/6)^6.
131 = 66 + 66 - 6/6.
                                                         197 = (66 \times (6 + 6 + 6) - 6)/6.
                                                                                                                   263 = 6 \times (6 \times 6 + 6) + 66/6.
132 = 66 + 66.
                                                         198 = 6 \times 6 \times 66/(6+6).
                                                                                                                   264 = 6 \times (6 \times 6 + 6) + 6 + 6.
133 = 66 + 66 + 6/6.
                                                         199 = 6 \times 6 \times 6 - 6 - 66/6.
                                                                                                                   265 = 6 \times (6 \times 6 + 6) + 6 + 6 + 6/6.
134 = 66 + 66 + (6+6)/6.
                                                         200 = 6 \times 6 \times 6 - 6 - (66 - 6)/6.
                                                                                                                   266 = (6+6/6) \times (6 \times 6 + (6+6)/6).
135 = 6 + 6 + 6 + 6 + 666/6.
                                                         201 = 6 \times (6 \times 66 + 6)/(6 + 6).
                                                                                                                   267 = 6 \times 666/(6+6) - 66.
                                                         202 = 6 \times 6 \times 6 - 6 - 6 - (6 + 6)/6.
136 = 66 + 6 + ((6 + 6)/6)^6.
                                                                                                                   268 = (66 + 6/6) \times (6 - (6 + 6)/6).
137 = 66 + 6 + 66 - 6/6.
                                                         203 = 6 \times 6 \times 6 - 6 - 6 - 6/6.
                                                                                                                   269 = 6 \times (6 \times 6 + 6) + 6 + 66/6.
138 = 66 + 66 + 6.
                                                         204 = 6 \times 6 \times 6 - 6 - 6.
                                                                                                                   270 = 666 - 6 \times 66.
139 = 66 + 66 + 6 + 6/6.
                                                         205 = 6 \times 6 \times 6 - 66/6.
                                                                                                                   271 = 66 + 6 \times 6 \times 6 - 66/6.
140 = 66 + 66 + 6 + (6 + 6)/6.
                                                         206 = 6 \times 6 \times 6 - (66 - 6)/6.
                                                                                                                   272 = (6+6/6) \times (6 \times 6 + (6+6)/6) + 6.
141 = 6 \times 6 - 6 + 666/6.
                                                         207 = 6 + 6 \times (6 \times 66 + 6)/(6 + 6).
                                                                                                                   273 = 6 - 66 + 6 \times 666/(6 + 6).
142 = (6+6) \times (6+6) - (6+6)/6.
                                                         208 = 6 \times 6 \times 6 - 6 - (6 + 6)/6.
                                                                                                                   274 = 6 \times 6 \times 6 - 6 + ((6+6)/6)^6.
                                                         209 = 6 \times 6 \times 6 - 6 - 6/6.
143 = (6+6) \times (6+6) - 6/6.
                                                                                                                   275 = 66 + 6 \times 6 \times 6 - 6 - 6/6.
144 = (6+6) \times (6+6).
                                                         210 = 6 \times 6 \times 6 - 6.
                                                                                                                   276 = 66 + 6 \times 6 \times 6 - 6.
                                                         211 = 6 \times 6 \times 6 - 6 + 6/6.
                                                                                                                   277 = 66 + 6 \times 6 \times 6 - 6 + 6/6.
145 = (6+6) \times (6+6) + 6/6.
146 = 6 \times 6 + (666 - 6)/6.
                                                         212 = 6 \times 6 \times 6 - 6 + (6 + 6)/6.
                                                                                                                   278 = 66 + 6 \times 6 \times 66/(6 + 6 + 6).
147 = 66 + 6 \times 66/6.
                                                         213 = 6 \times 6 \times 6 - 6 \times 6/(6+6).
                                                                                                                    279 = 6 \times 66 - 6 - 666/6.
148 = 6 \times 6 + (666 + 6)/6.
                                                         214 = 6 \times 6 \times 6 - (6+6)/6.
                                                                                                                   280 = 6 \times 6 \times 6 + ((6+6)/6)^6.
149 = (6+6) \times (6+6) + 6 - 6/6.
                                                         215 = 6 \times 6 \times 6 - 6/6.
                                                                                                                   281 = 66 + 6 \times 6 \times 6 - 6/6.
150 = (6+6) \times (6+6) + 6.
                                                         216 = 6 \times 6 \times 6.
                                                                                                                   282 = 66 + 6 \times 6 \times 6.
151 = (6+6) \times (6+6) + 6 + 6/6.
                                                         217 = 6 \times 6 \times 6 + 6/6.
                                                                                                                   283 = 66 + 6 \times 6 \times 6 + 6/6.
152 = 6 \times 6 \times 6 - ((6+6)/6)^6.
                                                                                                                   284 = 66 + 6 \times 6 \times 6 + (6 + 6)/6.
                                                         218 = 6 \times 6 \times 6 + (6+6)/6.
                                                         219 = 6 \times 6 \times 6 + 6 \times 6/(6+6).
                                                                                                                   285 = 6 \times 66 - 666/6.
153 = 6 \times 6 + 6 + 666/6.
154 = 6 \times 6 + 6 + (666 + 6)/6.
                                                                                                                   286 = 6 \times 6 \times 6 + ((6+6)/6)^6 + 6.
                                                         220 = 6 + 6 \times 6 \times 6 - (6 + 6)/6.
                                                                                                                   287 = 6 \times (6 \times 6 + 6 + 6) - 6/6.
155 = (6+6) \times (6+6) + 66/6.
                                                         221 = 6 + 6 \times 6 \times 6 - 6/6.
                                                                                                                   288 = 6 \times (6 \times 6 + 6 + 6).
156 = (6+6) \times (6+6) + 6 + 6.
                                                         222 = 6 + 6 \times 6 \times 6.
157 = (6+6) \times (6+6) + 6 + 6 + 6/6.
                                                         223 = 6 + 6 \times 6 \times 6 + 6/6.
                                                                                                                   289 = 6 \times (6 \times 6 + 6 + 6) + 6/6.
158 = 6 \times 6 \times 6 + 6 - ((6+6)/6)^6.
                                                         224 = 6 + 6 \times 6 \times 6 + (6 + 6)/6.
                                                                                                                   290 = 6 \times (6 \times 6 + 6 + 6) + (6 + 6)/6.
159 = 6 \times 6 + 6 + 6 + 666/6.
                                                                                                                   291 = 6 + 6 \times 66 - 666/6.
                                                         225 = 6 \times 6 \times 6 + 6 + 6 \times 6/(6+6).
160 = 6 \times 6 + 6 + 6 + (666 + 6)/6.
                                                         226 = 6 \times 6 \times 6 + (66 - 6)/6.
                                                                                                                   292 = 6 \times 6 \times 6 + 6 + 6 + ((6+6)/6)^6.
161 = (6+6) \times (6+6) + 6 + 66/6.
                                                         227 = 6 \times 66 + 6 \times 6/6.
                                                                                                                   293 = 6 \times (6 \times 6 + 6 + 6) + 6 - 6/6.
162 = (6+6) \times (6+6) + 6 + 6 + 6.
                                                         228 = 6 \times 6 \times 6 + 6 + 6.
                                                                                                                   294 = 6 \times (6 \times 6 + 6 + 6) + 6.
163 = 6 \times (6 \times 6 - 6) - 6 - 66/6.
                                                         229 = 6 \times 6 \times 6 + 6 + 6 + 6/6.
                                                                                                                   295 = 6 \times (6 \times 6 + 6 + 6) + 6 + 6/6.
164 = 6 \times 6 + ((6+6)/6)^{(6+6/6)}.
                                                         230 = 6 \times 6 \times 6 + 6 + 6 + (6 + 6)/6.
                                                                                                                   296 = (6 + (6 + 6)/6) \times (6 \times 6 + 6/6).
                                                         231 = 66 \times (6 \times 6 + 6)/(6 + 6).
165 = 66 \times (6 \times 6 - 6)/(6 + 6).
                                                                                                                    297 = 6 \times 6 \times 66/(6 + (6 + 6)/6).
166 = 66 + 6 \times 6 + ((6+6)/6)^6.
                                                         232 = 6 \times 6 \times 6 + 6 + (66 - 6)/6.
                                                                                                                    298 = 6 \times (6 \times 6 + 6 + 6) + (66 - 6)/6.
167 = 66 + 6 \times 6 + 66 - 6/6.
                                                         233 = 6 \times 6 \times 6 + 6 + 66/6.
                                                                                                                    299 = 6 \times (6 \times 6 + 6 + 6) + 66/6.
168 = 66 + 6 \times 6 + 66.
                                                         234 = 6 \times 6 \times 6 + 6 + 6 + 6.
                                                                                                                    300 = (66 - 6) \times (6 - 6/6).
169 = (6+6+6/6)^{((6+6)/6)}.
                                                                                                                    301 = (66 - 6) \times (6 - 6/6) + 6/6.
                                                         235 = 6 \times 6 \times 6 + 6 + 6 + 6 + 6/6.
170 = 66 - 6 + (666 - 6)/6.
                                                         236 = 66 \times 66/(6+6+6) - 6.
                                                                                                                    302 = (6+(6+6)/6) \times (6 \times 6+6/6)+6.
171 = 66 - 6 + 666/6.
                                                         237 = 66 \times (6 \times 6 + 6)/(6 + 6) + 6.
                                                                                                                    303 = 6 \times 6 \times 66/(6 + (6 + 6)/6) + 6.
172 = 66 - 6 + (666 + 6)/6.
                                                         238 = 6 \times 6 \times 6 + (66 + 66)/6.
                                                                                                                    304 = (6 + (6 + 6)/6) \times (6 \times 6 + (6 +
173 = 6 \times (6 \times 6 - 6) - 6 - 6/6.
                                                         239 = 6 \times 6 \times 6 + 6 + 6 + 66/6.
                                                                                                                   6)/6).
174 = 6 \times (6 \times 6 - 6) - 6.
                                                         240 = 6 \times (6 \times 6 + 6) - 6 - 6.
                                                                                                                    305 = (6 - 6/6) \times (66 - 6 + 6/6).
                                                                                                                   306 = (66 - 6) \times (6 - 6/6) + 6.
175 = 6 \times (6 \times 6 - 6) - 6 + 6/6.
                                                         241 = 6 \times (6 \times 6 + 6) - 66/6.
                                                         242 = 66 \times 66/(6+6+6).
                                                                                                                   307 = (66 - 6) \times (6 - 6/6) + 6 + 6/6.
176 = 66 + (666 - 6)/6.
                                                                                                                   308 = 66 + 66 \times 66/(6 + 6 + 6).
177 = 66 + 666/6.
                                                         243 = (6 \times 6/(6+6))^{(6} - 6/6).
178 = 66 + (666 + 6)/6.
                                                         244 = 6 \times 6 \times 6 - 6 + ((6+6)/6)^6.
                                                                                                                   309 = 66 + (6 \times 6/(6+6))(6-6/6).
179 = 6 \times (6 \times 6 - 6) - 6/6.
                                                         245 = (6 + 6/6) \times (6 \times 6 - 6/6).
                                                                                                                   310 = (6-6/6) \times (66-6+(6+6)/6).
180 = 6 \times (6 \times 6 - 6).
                                                                                                                   311 = (6-6/6) \times (66-6+6/6) + 6.
                                                         246 = 6 \times (6 \times 6 + 6) - 6.
```

 $247 = 6 \times (6 \times 6 + 6) - 6 + 6/6.$

 $312 = 6 \times (((6+6)/6)^6 - 6 - 6).$

```
313 = 6 \times (66 - 6 - 6) - 66/6.
                                                       379 = 6 \times 66 - 6 - 66/6.
                                                                                                                445 = 6 \times (66 + 6) + 6 + 6 + 6/6.
314 = (6 - 6/6) \times ((6 + 6)/6)^6 - 6.
                                                       380 = 6 \times 66 - 6 - (66 - 6)/6.
                                                                                                                446 = 6 \times (66+6) + 6 + 6 + (6+6)/6.
315 = 6 \times (666 - 6 \times 6)/(6 + 6).
                                                       381 = 66 \times 66/(6+6) + 6 + 6 + 6.
                                                                                                                447 = (6+6/6) \times ((6+6)/6)^6 - 6/6.
316 = 6 \times (6 \times 6 + 6) + ((6 + 6)/6)^6.
                                                       382 = 6 \times 66 - 6 - 6 - (6 + 6)/6.
                                                                                                                448 = (6 + 6/6) \times ((6 + 6)/6)^6.
                                                       383 = 6 \times 66 - 6 - 6 - 6/6.
317 = 66 + 6 \times (6 \times 6 + 6) - 6/6.
                                                                                                                449 = 6 \times (66 + 6) + 6 + 66/6.
318 = 66 + 6 \times (6 \times 6 + 6).
                                                       384 = 6 \times ((6+6)/6)^6.
                                                                                                                450 = 666 - 6 \times 6 \times 6.
319 = 66 + 6 \times (6 \times 6 + 6) + 6/6.
                                                       385 = 6 \times 66 - 66/6.
                                                                                                               451 = 66 + 6 \times 66 - 66/6.
320 = (6 - 6/6) \times ((6 + 6)/6)^6.
                                                       386 = 6 \times 66 - (66 - 6)/6.
                                                                                                                452 = 66 + 6 \times 66 - (66 - 6)/6.
                                                       387 = 6 \times 66 - (66 - 6 - 6)/6.
321 = 6 \times 6 \times 6 - 6 + 666/6.
                                                                                                                453 = 66 + 6 \times 66 - (66 - 6 - 6)/6.
322 = 6 \times (66 - 6 - 6) - (6 + 6)/6.
                                                        388 = 6 \times 66 - 6 - (6 + 6)/6.
                                                                                                                454 = (6 + 6/6) \times ((6 + 6)/6)^6 + 6.
323 = 6 \times (66 - 6 - 6) - 6/6.
                                                        389 = 6 \times 66 - 6 - 6/6.
                                                                                                                455 = (6/6 + 6) \times (66 - 6/6).
324 = 6 \times (66 - 6 - 6).
                                                       390 = 6 \times 66 - 6.
                                                                                                                456 = 66 + 6 \times 66 - 6.
325 = 6 \times (66 - 6 - 6) + 6/6.
                                                       391 = 6 \times 66 - 6 + 6/6.
                                                                                                                457 = 66 + 6 \times 66 - 6 + 6/6.
326 = (6 - 6/6) \times ((6 + 6)/6)^6 + 6.
                                                       392 = 6 \times 66 - 6 + (6 + 6)/6.
                                                                                                                458 = 66 + 6 \times 66 - 6 + (6 + 6)/6.
327 = 6 \times 66 + 6 \times 66/6.
                                                       393 = 6 \times 66 - 6 \times 6/(6 + 6).
                                                                                                               459 = 66 + 6 \times 66 - 6 \times 6/(6 + 6).
328 = 6 \times 6 \times 6 + (666 + 6)/6.
                                                       394 = 6 \times 66 - (6+6)/6.
                                                                                                                460 = 6 \times 66 + ((6+6)/6)^6.
                                                       395 = 6 \times 66 - 6/6.
329 = 6 \times 66 - 66 - 6/6.
                                                                                                               461 = 66 + 6 \times 66 - 6/6.
330 = 6 \times 66 - 66.
                                                       396 = 6 \times 66.
                                                                                                               462 = 66 + 6 \times 66.
331 = 6 \times 66 - 66 + 6/6.
                                                       397 = 6 \times 66 + 6/6.
                                                                                                               463 = 66 + 6 \times 66 + 6/6.
332 = 6 \times 66 - ((6+6)/6)^6.
                                                       398 = 6 \times 66 + (6 + 6)/6.
                                                                                                               464 = 66 + 6 \times 66 + (6 + 6)/6.
333 = 6 \times 666/(6+6).
                                                       399 = 6 \times 66 + 6 \times 6/(6 + 6).
                                                                                                               465 = 66 + 6 \times 66 + 6 \times 6/(6 + 6).
334 = 6 \times 666/(6+6) + 6/6.
                                                       400 = 6 \times 66 + 6 - (6 + 6)/6.
                                                                                                                466 = 6 \times 66 + 6 + ((6+6)/6)^6.
335 = (6 - 6/6) \times (66 + 6/6).
                                                       401 = 6 \times 66 + 6 - 6/6.
                                                                                                                467 = 6 \times (66 + 6 + 6) - 6/6.
336 = 66 \times (6 - 6/6) + 6.
                                                       402 = 6 \times 66 + 6.
                                                                                                                468 = 6 \times (66 + 6 + 6).
337 = 66 \times (6 - 6/6) + 6 + 6/6.
                                                       403 = 6 + 6 \times 66 + 6/6.
                                                                                                                469 = 6 \times (66 + 6 + 6) + 6/6.
338 = 6 \times 66 + 6 - ((6+6)/6)^6.
                                                       404 = 6 + 6 \times 66 + (6 + 6)/6.
                                                                                                                470 = 6 \times (66 + 6 + 6) + (6 + 6)/6.
339 = 6 \times 666/(6+6) + 6.
                                                       405 = 6 + 6 \times 66 + 6 \times 6/(6 + 6).
                                                                                                                471 = 6 \times (66 - 6) + 666/6.
                                                       406 = 6 \times 66 + (66 - 6)/6.
340 = (6 - 6/6) \times (66 + (6 + 6)/6).
                                                                                                                472 = 6 \times 66 + 6 + 6 + ((6+6)/6)^6.
341 = (6 - 6/6) \times (66 + 6/6) + 6.
                                                       407 = 6 \times 66 + 66/6.
                                                                                                                473 = 6 \times (66 + 6 + 6) + 6 - 6/6.
                                                       408 = 6 \times 66 + 6 + 6.
                                                                                                                474 = 6 \times (66 + 6 + 6) + 6.
342 = 66 \times (6 - 6/6) + 6 + 6.
343 = (6 + 6/6)(6 \times 6/(6 + 6)).
                                                       409 = 6 \times 66 + 6 + 6 + 6/6.
                                                                                                                475 = 6 \times (66 + 6 + 6) + 6 + 6/6.
344 = 6 \times 66 + 6 + 6 - ((6+6)/6)^6.
                                                       410 = 6 \times 66 + 6 + 6 + (6 + 6)/6.
                                                                                                                476 = (6 + 6/6) \times (66 + (6 + 6)/6).
345 = 6 \times 666/(6+6) + 6 + 6.
                                                       411 = 6 \times 66 + 6 + 6 + 6 \times 6/(6+6).
                                                                                                                477 = 6 \times (66 - 6) + 6 + 666/6.
346 = (6-6/6) \times (66+(6+6)/6) + 6.
                                                       412 = 6 \times 66 + 6 + (66 - 6)/6.
                                                                                                                478 = 6 \times (66 + 6 + 6) + (66 - 6)/6.
347 = 6 \times (66 - 6) - 6 - 6 - 6/6.
                                                       413 = 6 \times 66 + 6 + 66/6.
                                                                                                                479 = 6 \times (66 + 6 + 6) + 66/6.
348 = 6 \times (66 - 6) - 6 - 6.
                                                       414 = 6 \times 66 + 6 + 6 + 6.
                                                                                                                480 = 6 \times (66 + 6 + 6) + 6 + 6.
349 = 6 \times (66 - 6) - 66/6.
                                                       415 = 6 \times 66 + 6 + 6 + 6 + 6/6.
                                                                                                                481 = (6 + 6 + 6/6) \times (6 \times 6 + 6/6).
350 = (6 - 6/6) \times (6 + ((6 + 6)/6)^6).
                                                                                                                482 = (6+6/6) \times (66+(6+6)/6) + 6.
                                                       416 = 6 \times 66 + 6 + 6 + 6 + (6 + 6)/6.
351 = 6 \times (666 + 6 \times 6)/(6 + 6).
                                                       417 = 6 \times (66 + (6 \times 6 + 6)/(6 + 6)).
                                                                                                                483 = (6+6/6) \times (66+6 \times 6/(6+6)).
                                                                                                                484 = ((66 + 66)/6)^{((6+6)/6)}.
352 = 6 \times (66 - 6) - 6 - (6 + 6)/6.
                                                       418 = 6 \times 66 + (66 + 66)/6.
353 = 6 \times (66 - 6) - 6 - 6/6.
                                                       419 = 6 \times 66 + 6 + 6 + 66/6.
                                                                                                                485 = 6 \times (66 + 6 + 6) + 6 + 66/6.
354 = 6 \times (66 - 6) - 6.
                                                       420 = 6 \times (6 + ((6 + 6)/6)^6).
                                                                                                                486 = 666 - 6 \times (6 \times 6 - 6).
355 = 6 \times (66 - 6) - 6 + 6/6.
                                                       421 = 6 \times (66 + 6) - 66/6.
                                                                                                                487 = (6+6+6/6) \times (6 \times 6+6/6) + 6.
356 = 6 \times (66 - 6) - 6 + (6 + 6)/6.
                                                                                                                488 = (6 + (6+6)/6) \times (66-6+6/6).
                                                       422 = 6 \times (66 + 6) + (6 - 66)/6.
357 = 66 \times 66/(6+6) - 6.
                                                       423 = 66 - 6 + 66 \times 66/(6 + 6).
                                                                                                                489 = 666 - 66 - 666/6.
358 = 6 \times (66 - 6) - (6 + 6)/6.
                                                       424 = 6 \times (66 - 6) + ((6 + 6)/6)^6.
                                                                                                                490 = (6+6/6) \times (6+((6+6)/6)^6).
359 = 6 \times (66 - 6) - 6/6.
                                                       425 = 6 \times (66 + 6) - 6 - 6/6.
                                                                                                                491 = 6 \times 6 + (6 + 6/6) \times (66 - 6/6).
360 = 6 \times (66 - 6).
                                                       426 = 6 \times (66 + 6) - 6.
                                                                                                                492 = 66 + 6 \times (66 + 6) - 6.
361 = 6 \times (66 - 6) + 6/6.
                                                       427 = 6 \times (66 + 6) - 6 + 6/6.
                                                                                                                493 = (6+6) \times (6 \times 6 + 6) - 66/6.
362 = 6 \times (66 - 6) + (6 + 6)/6.
                                                       428 = 6 \times (66 + 6) - 6 + (6 + 6)/6.
                                                                                                                494 = (6+6) \times (6 \times 6 + 6) - (66-6)/6.
363 = 66 \times 66/(6+6).
                                                       429 = 66 + 66 \times 66/(6+6).
                                                                                                                495 = 6 \times 66 - 6 - 6 + 666/6.
364 = 6 \times (66 - 6) + 6 - (6 + 6)/6.
                                                       430 = 6 \times (66 + 6) - (6 + 6)/6.
                                                                                                                496 = ((6+6)/6)^6 + 6 \times (66+6).
365 = 6 \times (66 - 6) + 6 - 6/6.
                                                       431 = 6 \times (66 + 6) - 6/6.
                                                                                                                497 = 66 + 6 \times (66 + 6) - 6/6.
366 = 6 \times (66 - 6) + 6.
                                                       432 = 6 \times (66 + 6).
                                                                                                                498 = 66 + 6 \times (66 + 6).
367 = 6 \times (66 - 6) + 6 + 6/6.
                                                       433 = 6 \times (66 + 6) + 6/6.
                                                                                                                499 = 66 + 6 \times (66 + 6) + 6/6.
368 = 6 \times (66 - 6) + 6 + (6 + 6)/6.
                                                       434 = 6 \times (66 + 6) + (6 + 6)/6.
                                                                                                                500 = 66 + 6 \times (66 + 6) + (6 + 6)/6.
369 = 66 \times 66/(6+6) + 6.
                                                       435 = 6 \times (66 + 6) + 6 \times 6/(6 + 6).
                                                                                                                501 = 6 \times 66 - 6 + 666/6.
                                                                                                               502 = (6+6) \times (6 \times 6 + 6) - (6+6)/6.
370 = 6 \times (66 - 6) + (66 - 6)/6.
                                                       436 = 6 \times (66 + 6) + 6 - (6 + 6)/6.
371 = 6 \times (66 - 6) + 66/6.
                                                       437 = 6 \times (66 + 6) + 6 - 6/6.
                                                                                                               503 = (6+6) \times (6 \times 6 + 6) - 6/6.
372 = 6 \times (66 - 6) + 6 + 6.
                                                       438 = 6 \times (66 + 6) + 6.
                                                                                                               504 = (6+6) \times (6 \times 6 + 6).
373 = 6 \times (66 - 6) + 6 + 6 + 6/6.
                                                       439 = 6 \times (66 + 6) + 6 + 6/6.
                                                                                                               505 = (6+6) \times (6 \times 6 + 6) + 6/6.
                                                       440 = 6 \times (66 + 6) + 6 + (6 + 6)/6.
                                                                                                                506 = (6+6) \times (6 \times 6 + 6) + (6+6)/6.
374 = 66 \times (6 \times 6 - (6 + 6)/6)/6.
375 = 66 \times 66/(6+6) + 6 + 6.
                                                       441 = 6 \times (66+6) + 6 + 6 \times 6/(6+6).
                                                                                                                507 = 6 \times 66 + 666/6.
376 = 6 \times (66 - 6) + 6 + (66 - 6)/6.
                                                       442 = 6 \times (66 + 6) + (66 - 6)/6.
                                                                                                                508 = 6 \times 66 + (666 + 6)/6.
377 = 6 \times (66 - 6) + 6 + 66/6.
                                                       443 = 6 \times (66 + 6) + 66/6.
                                                                                                                509 = (6+6) \times (6 \times 6 + 6) + 6 - 6/6.
378 = 6 \times 66 - 6 - 6 - 6.
                                                       444 = 6 \times (66 + 6) + 6 + 6.
                                                                                                               510 = (6+6) \times (6 \times 6 + 6) + 6.
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511 = (6+6) \times (6 \times 6 + 6) + 6 + 6/6.
                                                                                                             643 = 6 \times 6 \times (6 + 6 + 6) - 6 + 6/6.
                                                      577 = 6 \times (66 + 6 \times 6 - 6) + 6/6.
512 = ((6+6)/6)^{(6+6\times6/(6+6))}.
                                                      578 = 6 \times (66 + 6 \times 6 - 6) + (6 + 6)/6.
                                                                                                             644 = 666 - (66 + 66)/6.
513 = 6 \times 66 + 6 + 666/6.
                                                      579 = 6 \times 66 + 6 \times 6 \times 66/(6+6).
                                                                                                             645 = 6 \times (6 \times 6 \times 6 \times 6 - 6)/(6 + 6).
514 = 6 \times 66 + 6 + (666 + 6)/6.
                                                      580 = (6 - 6/6) \times (6 + (666 - 6)/6).
                                                                                                             646 = 6 \times 6 \times (6+6+6) - (6+6)/6.
515 = (6+6) \times (6 \times 6 + 6) + 66/6.
                                                      581 = 6 \times (66 + 6 \times 6 - 6) + 6 - 6/6.
                                                                                                             647 = 6 \times 6 \times (6 + 6 + 6) - 6/6.
516 = (6+6) \times (6 \times 6 + 6) + 6 + 6.
                                                      582 = 6 \times (66 + 6 \times 6 - 6) + 6.
                                                                                                             648 = 6 \times 6 \times (6 + 6 + 6).
517 = 66 \times (66 + 6 \times 6/6)/6.
                                                      583 = 6 \times (66 + 6 \times 6 - 6) + 6 + 6/6.
                                                                                                             649 = 666 - 6 - 66/6.
518 = ((6+6)/6)^{(6+6\times6/(6+6))} + 6.
                                                      584 = (6 + (6+6)/6) \times (66+6+6/6).
                                                                                                             650 = 666 - 6 - (66 - 6)/6.
519 = 6 \times 66 + 6 + 6 + 666/6.
                                                                                                             651 = 6 \times (6 \times 6 \times 6 \times 6 + 6)/(6 + 6).
                                                      585 = (6 - 6/6) \times (6 + 666/6).
                                                      586 = (((6+6)/6)^{(6+6)} + 6)/(6+6/6).
520 = (6 + (6 + 6)/6) \times (66 - 6/6).
                                                                                                             652 = 666 - 6 - 6 - (6 + 6)/6.
                                                      587 = 666 - 66 - 6 - 6 - 6/6.
                                                                                                             653 = 666 - 6 - 6 - 6/6.
521 = (6+6) \times (6 \times 6 + 6) + 6 + 66/6.
                                                      588 = 666 - 66 - 6 - 6.
522 = 666 - (6+6) \times (6+6).
                                                                                                             654 = 666 - 6 - 6.
523 = 6 + 66 \times (66 + 6 \times 6/6)/6.
                                                      589 = 666 - 66 - 66/6.
                                                                                                             655 = 666 - 66/6.
524 = 6 \times 66 + ((6+6)/6)^{(6+6/6)}.
                                                      590 = 666 - 66 - (66 - 6)/6.
                                                                                                             656 = 666 - (66 - 6)/6
                                                      591 = (6 - 6/6) \times (6 + 666/6) + 6.
525 = (6 - 6/6) \times (666/6 - 6).
                                                                                                             657 = 666 - (66 - 6 - 6)/6.
                                                                                                             658 = 666 - 6 - (6 + 6)/6.
                                                      592 = 6 \times 6 + (6666 + 6)/(6 + 6).
526 = (6 + (6+6)/6) \times (66-6/6) + 6.
                                                      593 = 666 - 66 - 6 - 6/6.
                                                                                                             659 = 666 - 6 - 6/6.
527 = 66 \times (6 + (6 + 6)/6) - 6/6.
528 = 66 \times (6 + (6 + 6)/6).
                                                      594 = 666 - 66 - 6.
                                                                                                             660 = 666 - 6.
529 = 66 \times (6 + (6 + 6)/6) + 6/6.
                                                      595 = 666 - 66 - 6 + 6/6.
                                                                                                             661 = 666 - 6 + 6/6.
530 = 66 \times (6 + (6 + 6)/6) + (6 + 6)/6.
                                                      596 = 666 - 6 - ((6+6)/6)^6.
                                                                                                             662 = 666 - 6 + (6 + 6)/6.
                                                      597 = 666 - 66 - 6 \times 6/(6+6).
531 = (6 - 6/6) \times (666/6 - 6) + 6.
                                                                                                             663 = 666 - 6 \times 6/(6 + 6).
                                                      598 = 666 - 66 - (6 + 6)/6.
                                                                                                             664 = 666 - (6 + 6)/6.
532 = (6/6+6) \times (6+6+((6+6)/6)^6).
533 = 66 \times (6 + (6 + 6)/6) + 6 - 6/6.
                                                      599 = 666 - 66 - 6/6.
                                                                                                             665 = 666 - 6/6.
534 = 66 \times (6 + (6 + 6)/6) + 6.
                                                      600 = 666 - 66.
                                                                                                             666 = 666.
535 = 66 \times (6 + (6 + 6)/6) + 6 + 6/6.
                                                      601 = 666 - 66 + 6/6.
                                                                                                             667 = 666 + 6/6.
                                                                                                             668 = 666 + (6 + 6)/6.
536 = (6 + (6 + 6)/6) \times (66 + 6/6).
                                                      602 = 666 - ((6+6)/6)^6.
537 = 6 \times (66 + 6) - 6 + 666/6.
                                                      603 = 666 - ((6+6)/6)^6 + 6/6.
                                                                                                             669 = 666 + 6 \times 6/(6 + 6).
538 = 666 - ((6+6)/6)^{(6+6/6)}.
                                                      604 = 666 - 66 + 6 - (6 + 6)/6.
                                                                                                             670 = 666 + 6 - (6 + 6)/6.
539 = (6 + 6/6) \times (66 + 66/6).
                                                      605 = 666 - 66 + 6 - 6/6.
                                                                                                             671 = 666 + 6 - 6/6.
                                                      606 = 666 - 66 + 6.
                                                                                                             672 = 666 + 6.
540 = (6+6+6) \times (6 \times 6 - 6).
                                                                                                             673 = 666 + 6 + 6/6.
541 = (6+6+6) \times (6 \times 6 - 6) + 6/6.
                                                      607 = 666 - 66 + 6 + 6/6.
542 = (6 + (6+6)/6) \times (66+6/6) + 6.
                                                      608 = 666 + 6 - ((6+6)/6)^6.
                                                                                                             674 = 666 + 6 + (6 + 6)/6.
543 = 6 \times (66 + 6) + 666/6.
                                                      609 = 6 \times (66 + 6 \times 6) - 6 \times 6/(6 + 6).
                                                                                                             675 = 666 + 6 + 6 \times 6/(6 + 6).
                                                      610 = 6 \times (66 + 6 \times 6) - (6 + 6)/6.
544 = 666 - (666 + 66)/6.
                                                                                                             676 = 666 + (66 - 6)/6.
545 = (6 + 6/6) \times (66 + 66/6) + 6.
                                                      611 = 6 \times (66 + 6 \times 6) - 6/6.
                                                                                                             677 = 666 + 66/6.
                                                                                                             678 = 666 + 6 + 6.
546 = (6+6+6) \times (6 \times 6 - 6) + 6.
                                                      612 = 6 \times (66 + 6 \times 6).
                                                                                                             679 = 666 + 6 + 6 + 6/6.
547 = (6+6+6) \times (6 \times 6-6) + 6 + 6/6.
                                                      613 = 6 \times (66 + 6 \times 6) + 6/6.
548 = 666 - 6 - (666 + 6)/6.
                                                      614 = 6 \times (66 + 6 \times 6) + (6 + 6)/6.
                                                                                                             680 = 666 + 6 + 6 + (6 + 6)/6.
549 = 666 - 6 - 666/6.
                                                      615 = (66 \times 66 - 666)/6.
                                                                                                             681 = 66 \times (6+6) - 666/6.
550 = (6 - 6/6) \times (666 - 6)/6.
                                                                                                             682 = 666 + 6 + (66 - 6)/6.
                                                      616 = 6 \times (66 + 6 \times 6) + 6 - (6 + 6)/6.
551 = (6+6+6) \times (6 \times 6-6) + 66/6.
                                                      617 = 6 \times (66 + 6 \times 6) + 6 - 6/6.
                                                                                                             683 = 666 + 6 + 66/6.
552 = (6+6+6) \times (6 \times 6-6) + 6 + 6.
                                                      618 = 6 \times (66 + 6 \times 6) + 6.
                                                                                                             684 = 666 + 6 + 6 + 6.
553 = (6+6/6) \times (66+6+6+6/6).
                                                      619 = 6 \times (66 + 6 \times 6) + 6 + 6/6.
                                                                                                             685 = 666 + 6 + 6 + 6 + 6/6.
554 = 666 - (666 + 6)/6.
                                                      620 = 6 \times (66 + 6 \times 6) + 6 + (6 + 6)/6.
                                                                                                             686 = 666 + 6 + 6 + 6 + (6 + 6)/6.
555 = 666 - 666/6.
                                                      621 = 6 + (66 \times 66 - 666)/6.
                                                                                                             687 = (6 \times 6/(6+6))^6 - 6 \times 6 - 6.
556 = (6666 + 6)/(6 + 6).
                                                      622 = 66 + (6666 + 6)/(6 + 6).
                                                                                                             688 = 666 + (66 + 66)/6.
557 = (6666 + 6)/(6 + 6) + 6/6.
                                                      623 = 6 \times (66 + 6 \times 6) + 66/6.
                                                                                                             689 = 666 + 6 + 6 + 66/6.
558 = 666 - 6 \times (6 + 6 + 6).
                                                      624 = 666 - 6 \times 6 - 6.
                                                                                                             690 = 666 + 6 + 6 + 6 + 6.
                                                      625 = (6 - 6/6)^{(6 - (6+6)/6)}
                                                                                                             691 = 66 + 6 \times 66 - 66/6.
559 = 666 - 6 \times (6 + 6 + 6) + 6/6.
                                                      626 = (6 - 6/6)^{(6 - (6+6)/6)} + 6/6.
                                                                                                             692 = 66 + 6 \times 66 - (66 - 6)/6.
560 = (6 - 6/6) \times (666 + 6)/6.
561 = 666 \times (6 - 6/6)/6 + 6.
                                                      627 = 666 - 6 - 6 \times 66/(6 + 6).
                                                                                                             693 = (6 \times 6/(6+6))^6 - 6 \times 6.
562 = (6666 + 6)/(6 + 6) + 6.
                                                      628 = 666 - 6 \times 6 - (6 + 6)/6.
                                                                                                             694 = 666 + 6 + (66 + 66)/6.
                                                      629 = 666 - 6 \times 6 - 6/6.
                                                                                                             695 = 66 + 6 \times 66 - 6 - 6/6.
563 = 666 - 66 - 6 \times 6 - 6/6.
564 = (6+6) \times (66+6 \times 6/6).
                                                      630 = 666 - 6 \times 6.
                                                                                                             696 = 66 + 6 \times 66 - 6.
565 = (6+6) \times (66+6 \times 6/6) + 6/6.
                                                      631 = 666 - 6 \times 6 + 6/6.
                                                                                                             697 = 66 + 6 \times 66 - 6 + 6/6.
566 = (6 - 6/6) \times (666 + 6)/6 + 6.
                                                      632 = 666 - 6 \times 6 + (6 + 6)/6.
                                                                                                             698 = 66 \times ((6+6)/6)^6/6 - 6.
                                                                                                             699 = (6 \times 6/(6+6))^6 - 6 \times 6 + 6.
567 = 666 \times (6 - 6/6)/6 + 6 + 6.
                                                      633 = 666 - 6 \times 66/(6 + 6).
                                                      634 = 666 - 6 \times 6 + 6 - (6 + 6)/6.
                                                                                                             700 = 66 + 6 \times 66 - (6 + 6)/6.
568 = (6666 + 6)/(6 + 6) + 6 + 6.
569 = 66 + (6+6) \times (6 \times 6 + 6) - 6/6.
                                                      635 = 666 - 6 \times 6 + 6 - 6/6.
                                                                                                             701 = 66 + 6 \times 66 - 6/6.
                                                      636 = 666 - 6 \times 6 + 6.
570 = 66 + (6+6) \times (6 \times 6 + 6).
                                                                                                             702 = 66 + 6 \times 66.
                                                      637 = 666 - 6 \times 6 + 6 + 6/6.
                                                                                                             703 = 66 + 6 \times 66 + 6/6.
571 = 66 + (6+6) \times (6 \times 6 + 6) + 6/6.
572 = 66 \times (((6+6)/6)^6 - 6 - 6)/6.
                                                      638 = 66 \times (((6+6)/6)^6 - 6)/6.
                                                                                                             704 = 66 \times ((6+6)/6)^6/6.
573 = 66 + 6 \times 66 + 666/6.
                                                      639 = 666 - 6 \times 66/(6+6) + 6.
                                                                                                             705 = (66 \times ((6+6)/6)^6 + 6)/6.
                                                                                                             706 = 666 + 6 \times 6 + 6 - (6 + 6)/6.
574 = 6 \times (66 + 6 \times 6 - 6) - (6 + 6)/6.
                                                      640 = (66 - 6) \times ((6 + 6)/6)^6/6.
575 = 6 \times (66 + 6 \times 6 - 6) - 6/6.
                                                      641 = 666 - 66 + 6 \times 6/6.
                                                                                                             707 = 666 + 6 \times 6 + 6 - 6/6.
576 = 6 \times (66 + 6 \times 6 - 6).
                                                      642 = 6 \times 6 \times (6 + 6 + 6) - 6.
                                                                                                             708 = 666 + 6 \times 6 + 6.
```

 $840 = (6+6) \times (6+((6+6)/6)^6).$

```
709 = 666 + 6 \times 6 + 6 + 6/6.
710 = 66 \times ((6+6)/6)^6/6 + 6.
711 = (6 \times 6/(6+6))^6 - 6 - 6 - 6.
712 = 66 + 6 \times 66 + (66 - 6)/6.
713 = 66 + 6 \times 66 + 66/6.
714 = (6+6) \times (66-6) - 6.
715 = 66 \times (66 - 6/6)/6.
716 = (66 \times (66 - 6/6) + 6)/6.
717 = (6 \times 6/(6+6))^6 - 6 - 6.
718 = (6+6) \times (66-6) - (6+6)/6.
719 = (6+6) \times (66-6) - 6/6.
720 = (6+6) \times (66-6).
721 = (6+6) \times (66-6) + 6/6.
722 = (6+6) \times (66-6) + (6+6)/6.
723 = (6 \times 6/(6+6))^6 - 6.
724 = (66 \times 66 - 6 - 6)/6.
725 = (66 \times 66 - 6)/6.
726 = 66 \times 66/6.
727 = (66 \times 66 + 6)/6.
728 = (6 \times 6/(6+6))^6 - 6/6.
729 = (6 \times 6/(6+6))^6.
730 = (6 \times 6/(6+6))^6 + 6/6.
731 = 6 + (66 \times 66 - 6)/6.
732 = 66 + 666.
733 = (66 \times 66 + 6)/6 + 6.
734 = (66 \times 66 + 6 + 6)/6 + 6.
735 = (6 \times 6/(6+6))^6 + 6.
736 = (6 \times 6/(6+6))^6 + 6 + 6/6.
737 = 66 \times (66 + 6/6)/6.
738 = 666 + 66 + 6.
739 = (66 \times 66 + 6)/6 + 6 + 6.
740 = (6 \times 6/(6+6))^6 + 66/6.
741 = (6 \times 6/(6+6))^6 + 6 + 6.
742 = (6 \times 6/(6+6))^6 + 6 + 6 + 6/6.
743 = 66 \times (66 + 6/6)/6 + 6.
744 = 666 + 66 + 6 + 6.
745 = (66 \times 66 + 6)/6 + 6 + 6 + 6.
746 = (6 \times 6/(6+6))^6 + 6 + 66/6.
747 = (6 \times 6/(6+6))^6 + 6 + 6 + 6.
748 = 66 \times (66 + (6+6)/6)/6.
749 = 66 \times (66 + 6/6)/6 + 6 + 6.
750 = 66 \times (6+6) - 6 \times 6 - 6.
751 = 66 + 6 \times 6 \times (66 - 6/6)/6.
752 = (6 \times 6/(6+6))^6 + 6 + 6 + 66/6.
753 = (6 \times 6/(6+6))^6 + 6 + 6 + 6 + 6.
754 = 66 \times (66 + (6 + 6)/6)/6 + 6.
755 = 66 \times (6+6) - 6 \times 6 - 6/6.
756 = 6 \times (66 + 66 - 6).
757 = 6 \times (66 + 66 - 6) + 6/6.
758 = 6 \times (66 + 66 - 6) + (6 + 6)/6.
759 = 6 \times 6 - 6 + (6 \times 6/(6+6))^6.
760 = 6 \times 6 + (66 \times 66 - 6 - 6)/6.
761 = 6 \times 6 + (66 \times 66 - 6)/6.
762 = 6 \times (66 + 66 - 6) + 6.
763 = 6 \times 6 + (66 \times 66 + 6)/6.
764 = 6 \times 6 + (6 \times 6/(6+6))^6 - 6/6.
765 = 6 \times 6 + (6 \times 6/(6+6))^6
766 = 6 \times 6 + (6 \times 6/(6+6))^6 + 6/6.
767 = (6+6) \times ((6+6)/6)^6 - 6/6.
768 = (6+6) \times ((6+6)/6)^6
769 = (6+6) \times ((6+6)/6)^6 + 6/6.
770 = (6 + 6/6) \times (666 - 6)/6.
771 = 666 - 6 + 666/6.
772 = 666 - 6 + (666 + 6)/6.
773 = (6+6) \times ((6+6)/6)^6 + 6 - 6/6.
774 = (6+6) \times ((6+6)/6)^6 + 6.
```

```
775 = 66 \times (6+6) - 6 - 66/6.
776 = 666 + (666 - 6)/6.
777 = 666 + 666/6.
778 = 666 + (666 + 6)/6.
779 = 66 \times (6+6) - 6 - 6 - 6/6.
780 = (6+6) \times (66-6/6).
781 = 66 \times (6+6) - 66/6.
782 = 66 \times (6+6) - (66-6)/6.
783 = 666 + 6 + 666/6.
784 = (6 + 6/6) \times (666 + 6)/6.
785 = 66 \times (6+6) - 6 - 6/6.
786 = 66 \times (6+6) - 6.
787 = 66 \times (6+6) - 6 + 6/6.
788 = 66 \times (6+6) - 6 + (6+6)/6.
789 = 66 - 6 + (6 \times 6/(6+6))^6.
790 = 66 \times (6+6) - (6+6)/6.
791 = 66 \times (6+6) - 6/6.
792 = 66 \times (6+6).
793 = 66 \times (6+6) + 6/6.
794 = 66 \times (6+6) + (6+6)/6.
795 = 66 + (6 \times 6/(6 + 6))^6.
796 = 66 \times (6+6) + 6 - (6+6)/6.
797 = 66 \times (6+6) + 6 - 6/6.
798 = 66 \times (6+6) + 6.
799 = 66 \times (6+6) + 6 + 6/6.
800 = 66 \times (6+6) + 6 + (6+6)/6.
801 = (6 \times 6/(6+6))^6 + 66 + 6.
802 = 66 \times (6+6) + (66-6)/6.
803 = 66 \times (6+6) + 66/6.
804 = 66 \times (6+6) + 6 + 6.
805 = 66 \times (6+6) + 6 + 6 + 6/6.
806 = 66 \times (6+6) + 6 + 6 + (6+6)/6.
807 = 66 + 6 + 6 + (6 \times 6/(6 + 6))^6.
808 = 66 \times (6+6) + 6 + (66-6)/6.
809 = 66 \times (6+6) + 6 + 66/6.
810 = 66 \times (6+6) + 6 + 6 + 6.
811 = 66 \times (6+6) + 6 + 6 + 6 + 6/6.
812 = (6 + 6/6) \times (6 + (666 - 6)/6).
813 = 66 + 6 \times 66 + 666/6.
814 = 66 \times (66 + 6 + (6 + 6)/6)/6.
815 = 66 \times (6+6) + 6 + 6 + 66/6.
816 = (6+6) \times (66+(6+6)/6).
817 = 66 + 6 \times 6 \times (6 + 6) - 66/6.
818 = (((6+6)/6)^{(6+6)} - 6)/(6-6/6).
819 = (6 + 6/6) \times (6 + 666/6).
820 = 66 \times (6+6) + 6 + (66+66)/6.
821 = 66 + 6 \times 6 \times (6 + 6) - 6 - 6/6.
822 = 66 + 6 \times 6 \times (6 + 6) - 6.
823 = 66 + 6 \times 6 \times (6 + 6) - 6 + 6/6.
824 = 6 + (((6+6)/6)^{(6+6)} - 6)/(6 -
6/6).
825 = (6 + 6/6) \times (6 + 666/6) + 6.
826 = 66 + 6 \times 6 \times (6+6) - (6+6)/6.
827 = 66 + 6 \times 6 \times (6 + 6) - 6/6.
828 = 6 \times (66 + 66 + 6).
829 = 66 + 6 \times 6 \times (6 + 6) + 6/6.
830 = 66 + 6 \times 6 \times (6 + 6) + (6 + 6)/6.
831 = 66 + 6 \times 6 + (6 \times 6/(6+6))^6.
832 = (6 + 6 + 6/6) \times ((6 + 6)/6)^6.
833 = 66 \times (6+6) + 6 \times 6 + 6 - 6/6.
834 = 66 \times (6+6) + 6 \times 6 + 6.
835 = 66 \times (6+6) + 6 \times 6 + 6 + 6/6.
836 = (66 \times 66 + 666 - 6)/6.
837 = (66 \times 66 + 666)/6.
838 = (66 \times 66 + 666 + 6)/6.
839 = 66 + 6 \times 6 \times (6 + 6) + 66/6.
```

```
841 = (6 \times 6 - 6 - 6/6)^{((6+6)/6)}.
842 = (66 \times (66 + 66/6) + 6)/6 - 6.
843 = (66 \times 66 + 666)/6 + 6.
844 = 66 \times (6+6) - 6 - 6 + ((6+6)/6)^6.
845 = (6 + 6 + 6/6) \times (66 - 6/6).
846 = 666 + 6 \times (6 \times 6 - 6).
847 = 66 \times (66 + 66/6)/6.
848 = (66 \times (66 + 66/6) + 6)/6.
849 = (66 \times 66 + 666)/6 + 6 + 6.
850 = 66 \times (6+6) - 6 + ((6+6)/6)^6.
851 = (6+6+6/6) \times (66-6/6) + 6.
852 = 66 + 66 \times (6 + 6) - 6.
853 = 6 \times (6+6) \times (6+6) - 66/6.
854 = (6 + 6/6) \times (666 + 66)/6.
855 = 6 \times 6 + (6 + 6/6) \times (6 + 666/6).
856 = 66 \times (6+6) + ((6+6)/6)^6.
857 = 66 + 66 \times (6 + 6) - 6/6.
858 = 66 + 66 \times (6 + 6).
859 = 66 + 66 \times (6 + 6) + 6/6.
860 = 66 + 66 \times (6 + 6) + (6 + 6)/6.
861 = 66 + (((6/((6+6)/6))^6) + 66).
862 = 6 \times (6+6) \times (6+6) - (6+6)/6.
863 = 6 \times (6+6) \times (6+6) - 6/6.
864 = 6 \times (6+6) \times (6+6).
865 = 6 \times (6+6) \times (6+6) + 6/6.
866 = 6 \times (6+6) \times (6+6) + (6+6)/6.
867 = 6 \times (6+6) \times (6+6) + 6 \times
6/(6+6).
868 = 6 \times (6+6) \times (6+6) + 6 -
(6+6)/6.
869 = 6 \times (6+6) \times (6+6) + 6 - 6/6.
870 = 6 \times (6+6) \times (6+6) + 6.
871 = 6 \times (6+6) \times (6+6) + 6 + 6/6.
872 = 6 \times (6+6) \times (6+6) + 6 +
(6+6)/6.
873 = (6+6)\times(6+6)+(6\times6/(6+6))^6.
874 = 6 \times (6+6) \times (6+6) + (66-6)/6.
875 = 6 \times (6+6) \times (6+6) + 66/6.
876 = 6 \times (6+6) \times (6+6) + 6 + 6.
877 = 6 \times (6+6) \times (6+6) + 6 + 6 + 6/6.
878 = 6 \times (6+6) \times (6+6) + 6 + 6 + 6
(6+6)/6.
879 = (6+6) \times (6+6) + 6 + (6 \times 6)
6/(6+6))^6.
880 = 666 + 6 \times 6 \times 6 - (6 + 6)/6.
881 = 666 + 6 \times 6 \times 6 - 6/6.
882 = 666 + 6 \times 6 \times 6.
883 = 666 + 6 \times 6 \times 6 + 6/6.
884 = 666 + 6 \times 6 \times 6 + (6+6)/6.
885 = (6 - 6/6) \times (66 + 666/6).
886 = 666 + 6 \times 6 \times 6 + 6 - (6+6)/6.
887 = 666 + 6 \times 6 \times 6 + 6 - 6/6.
888 = 666 + 6 \times 6 \times 6 + 6.
889 = 666 + 6 \times 6 \times 6 + 6 + 6/6.
890 = 666 + 6 \times 6 \times 6 + 6 + (6+6)/6.
891 = (6 - 6/6) \times (66 + 666/6) + 6.
892 = 66 + 6 \times 6 \times (6 + 6) + ((6 + 6)/6)^6.
893 = 666 + 6 \times 66 + 6 \times 6/6.
894 = 6 \times ((6+6) \times (6+6) + 6) - 6.
895 = 6666/6 - 6 \times 6 \times 6.
896 = (6/6+6) \times ((6+6)/6)^{(6+6/6)}.
897 = 66 \times (6+6) - 6 + 666/6.
898 = 6 \times ((6+6) \times (6+6) + 6) -
(6+6)/6.
899 = 6 \times ((6+6) \times (6+6) + 6) - 6/6.
```

```
900 = 6 \times ((6+6) \times (6+6) + 6).
901 = 6 \times ((6+6) \times (6+6) + 6) + 6/6.
902 = 6 \times ((6+6) \times (6+6) + 6) +
(6+6)/6.
903 = 66 \times (6+6) + 666/6.
904 = 66 \times (6+6) + (666+6)/6.
905 = 6 \times ((6+6) \times (6+6) + 6) +
6 - 6/6.
906 = 6 \times ((6+6) \times (6+6) + 6) + 6.
907 = 6 \times ((6+6) \times (6+6) + 6) +
6 + 6/6.
908 = 6 \times ((6+6) \times (6+6) + 6) +
6 + (6 + 6)/6.
909 = 66 \times (6+6) + 6 + 666/6.
910 = (6+6/6) \times (66+((6+6)/6)^6).
911 = 6 \times ((6+6) \times (6+6) + 6) + 66/6.
912 = 6 \times ((6+6) \times (6+6) + 6) + 6 + 6.
913 = 66 \times (66 + 6 + 66/6)/6.
914 = 66 \times (6+6) + (666+66)/6.
915 = 66 \times (6+6) + 6 + 6 + 666/6.
916 = (6+6/6) \times (66+((6+6)/6)^6)+6.
917 = 666 + 6 \times (6 \times 6 + 6) - 6/6.
918 = 666 + 6 \times (6 \times 6 + 6).
919 = 666 + 6 \times (6 \times 6 + 6) + 6/6.
920 = 666 + 6 \times (6 \times 6 + 6) + (6 + 6)/6.
921 = 66 \times (6+6) + 6 + 6 + 6 + 666/6.
922 = 66 + 66 \times (6+6) + ((6+6)/6)^6.
923 = (6+6+6/6) \times (66+6-6/6).
924 = 66 \times (6 + 6 + (6 + 6)/6).
925 = 66 \times (6 + 6 + (6 + 6)/6) + 6/6.
926 = 66 \times (6 + 6 + (6 + 6)/6) + (6 +
6)/6.
927 = 66 + 66 + 66 + (6 \times 6/(6+6))^6.
928 = 6 \times (6+6) \times (6+6) + ((6+6)/6)^6
929 = 66 + 6 \times (6 + 6) \times (6 + 6) - 6/6.
930 = 66 + 6 \times (6 + 6) \times (6 + 6).
931 = 66 + 6 \times (6+6) \times (6+6) + 6/6.
932 = 66 + 6 \times (6 + 6) \times (6 + 6) +
(6+6)/6.
```

```
933 = 6 \times 6 \times 6 - 6 - 6 + (6 \times 6/(6 + 6))
6))^{6}.
934 = (6+6) \times (66+6+6) - (6+6)/6.
935 = (6+6) \times (66+6+6) - 6/6.
936 = (6+6) \times (66+6+6).
937 = (6+6) \times (66+6+6) + 6/6.
938 = (6+6) \times (66+6+6) + (6+6)/6.
939 = 6 \times 6 \times 6 + (6 \times 6/(6+6))^6 - 6.
940 = (6+6) \times (66+6+6)+6
(6+6)/6.
941 = (6+6) \times (66+6+6) + 6 - 6/6.
942 = (6+6) \times (66+6+6) + 6.
943 = (6+6) \times (66+6+6) + 6+6/6.
944 = (6+6) \times (66+6+6)+6+
(6+6)/6.
945 = 6 \times 6 \times 6 + (6 \times 6/(6+6))^6.
946 = 6 \times 6 \times 6 + (6 \times 6/(6+6))^6 + 6/6.
947 = (6+6) \times (66+6+6) + 66/6.
948 = (6+6) \times (66+6+6) + 6 + 6.
949 = (6+6+6/6) \times (66+6+6/6).
950 = (6 \times 6 - 66/6) \times (6 \times 6 + (6 + 6))
6)/6).
951 = 6 \times 6 \times 6 + 6 + (6 \times 6/(6+6))^6.
952 = 6 \times 66 + (6666 + 6)/(6 + 6).
953 = (6+6) \times (66+6+6) + 6+66/6.
954 = 666 + 6 \times (6 \times 6 + 6 + 6).
955 = (6 \times 6 - 6 + 6/6)^{((6+6)/6)} - 6.
956 = (6 \times 6 - 66/6) \times (6 \times 6 + (6 + 6)) \times (6 \times 6 + 6) \times (6 \times 6) \times (6 \times 6 + 6) \times (6 \times 6) \times (6 \times 6 + 6) \times (6 \times 6) \times (6 \times 6) \times (6 \times 6) \times (6 \times 
6)/6) + 6.
957 = 66 \times (6 \times (6 \times 6 - 6) - 6)/(6 + 6).
958 = ((6+6)/6)^{((66-6)/6)} - 66.
959 = (6+6/6) \times (66+66+6-6/6).
960 = (66 - 6) \times (6 + (66 - 6)/6).
961 = (6 \times 6 - 6 + 6/6)^{((6+6)/6)}.
962 = (6 \times 6 - 6 + 6/6)^{((6+6)/6)} + 6/6.
963 = 66 \times (6 \times (6 \times 6 - 6) - 6)/(6 + 6)
6) + 6.
964 = ((6+6)/6)^{((66-6)/6)} - 66 + 6.
```

| 6 - 6/6. |
|--|
| $966 = 66 + 6 \times (6+6) \times (6+6) + 6.$ |
| $967 = (6 \times 6 - 6 + 6/6)^{((6+6)/6)} + 6.$ |
| $968 = 66 \times (66 + (66 + 66)/6)/6.$ |
| $969 = 6 \times 6 \times (6 \times 6 - 6) - 666/6.$ |
| $970 = 6 \times 6 \times (6 \times 6 - 6) - (666 - 6)/6.$ |
| $971 = (6+6+6) \times (66-6-6) - 6/6.$ |
| $972 = (6+6+6) \times (66-6-6).$ |
| $973 = (6+6+6) \times (66-6-6) + 6/6.$ |
| $974 = (6+6+6) \times (66-6-6) +$ |
| (6+6)/6. |
| $975 = 6 \times (6+6) \times (6+6) + 666/6.$ |
| $976 = (666 + 66) \times (6 + (6+6)/6)/6.$ |
| $977 = (6+6+6) \times (66-6-6) +$ |
| 6 - 6/6. |
| $978 = (6+6+6) \times (66-6-6) + 6.$ |
| 979 = 6666/6 - 66 - 66. |
| $980 = (6 \times 6 - 6/6) \times (6 + (66 + 66)/6).$ |
| $981 = 6 \times (6 \times 6 + 6) + (6 \times 6/(6 + 6))^{6}.$ |
| $982 = ((6+6)/6)^{((66-6)/6)} - 6 \times 6 - 6.$ |
| $983 = (6+6+6) \times (66-6-6) + 66/6.$ |
| $984 = (6+6+6) \times (66-6-6) + 6+6.$ |
| 985 = 6 - 66 - 66 + 6666/6. |
| $986 = (6+66/6) \times (((6+6)/6)^6 - 6).$ |
| $987 = 6 \times (66 \times (6 \times 6 - 6) - 6) / (6 + 6).$ $988 = ((6 + 6) / 6)^{((66 - 6) / 6)} - 6 \times 6.$ |
| $988 = ((6+6)/6)^{((66-6)/6)} - 6 \times 6.$ |
| $989 = 666 + 6 \times (66 - 6 - 6) - 6/6.$ |
| $990 = 666 + 6 \times (66 - 6 - 6).$ $991 = 666 + 6 \times (66 - 6 - 6) + 6/6.$ |
| $991 = 666 + 6 \times (66 - 6 - 6) + 6/6.$ |
| $992 = (6+66/6) \times (((6+6)/6)^6 - 6) + 6.$ |
| $993 = 6 \times (66 \times (6 \times 6 - 6) + 6) / (6 + 6).$ |
| $994 = ((66-6)/6)(6 \times 6/(6+6)) - 6.$ |
| $995 = 666 + 6 \times 66 - 66 - 6/6.$ |
| $996 = (6+6) \times (66+6+66/6)$. |
| $997 = 6 \times 6 + (6 \times 6 - 6 + 6/6)^{((6+6)/6)}.$ |
| $998 = 666 + 6 \times 66 - ((6+6)/6)^6.$ |
| $999 = 6 \times 666/(6 - (6 + 6)/6).$ |
| $1000 = ((66 - 6)/6)^{6} \times 6/(6 + 6).$ |

 $965 = 66 + 6 \times (6 + 6) \times (6 + 6) +$

10. Representations Using Number 7

| 101 = 7777/77. |
|--|
| 101 = 777777. $102 = 77 + 7 + 7 + 7777.$ |
| |
| 103 = (777 - 7)/7 - 7. |
| 104 = 777/7 - 7. |
| $105 = 7 \times (7 + 7) + 7.$ |
| $106 = 7 \times (7+7) + 7 + 7/7.$ |
| 107 = (777 - 77)/7 + 7. |
| 108 = 7777/77 + 7. |
| 109 = (777 - 7 - 7)/7. |
| 110 = (777 - 7)/7. |
| 111 = 777/7. |
| 112 = (777 + 7)/7. |
| 113 = (7 + 7 + 777)/7. |
| $114 = ((7+7)/7)^7 - 7 - 7.$ |
| 115 = (777 + 77)/7 - 7. |
| $116 = 7 \times (7 + 7) + 7 + 77/7.$ |
| 117 = (777 - 7)/7 + 7. |
| 118 = 7 + 777/7. |
| $119 = 7 \times 7 + 77 - 7$. |
| $120 = 77 + 7 \times 7 - 7 + 7/7.$ |
| $121 = ((7+7)/7)^7 - 7.$ |
| 122 = (777 + 77)/7. |
| |
| 123 = (777 + 77 + 7)/7. |

```
124 = 7 + 7 + (777 - 7)/7.
125 = 7 + 7 + 777/7.
126 = 7 \times 7 + 77.
127 = 77 + 7 \times 7 + 7/7.
128 = ((7+7)/7)^7.
129 = 7 + (777 + 77)/7.
130 = ((7+7)/7)^7 + (7+7)/7.
131 = 7 + 7 + 7 + (777 - 7)/7.
132 = 7 + 7 + 7 + 777/7.
133 = 7 \times 7 + 77 + 7.
134 = 77 + 7 \times 7 + 7 + 7/7.
135 = 7 + ((7+7)/7)^7.
136 = 7 + 7/7 + ((7 + 7)/7)^7.
137 = 7 \times 7 + 77 + 77/7.
138 = 7 \times 7 + 77 + (77 + 7)/7.
139 = 7 \times (7 + 7 + 7) - 7 - 7/7.
140 = 7 \times (7 + 7 + 7) - 7.
141 = ((7+7) \times (77-7) + 7)/7.
142 = 7 + 7 + ((7 + 7)/7)^{7}.
143 = 77 + 77 - 77/7.
144 = (7 + 7/7) \times (7 + 77/7).
145 = 7 \times (7 + 7 + 7) - (7 + 7)/7.
146 = 7 \times (7 + 7 + 7) - 7/7.
```

 $147 = 7 \times (7 + 7 + 7).$ $148 = 7 \times (7 + 7 + 7) + 7/7.$ $149 = 7 \times (7 + 7 + 7) + (7 + 7)/7.$ $150 = 777 + 7 \times 77/77.$ $151 = 7 + (7 + 77/7) \times (7 + 7/7).$ 152 = 77 + 77 - (7 + 7)/7.153 = 77 + 77 - 7/7. 154 = 77 + 77. 155 = 77 + 77 + 7/7. 156 = 77 + 77 + (7 + 7)/7.157 = 77 + 77 + (7 + 7 + 7)/7. $158 = 7 \times (7 + 7 + 7) + 77/7.$ $159 = 7 \times 7 + (777 - 7)/7.$ $160 = 777 + 7 \times 7/7.$ 161 = 77 + 77 + 7. 162 = 77 + 77 + 7 + 7/7. $163 = 7 + (7 + 7) \times (77 + 7/7)/7.$ 164 = 77 + 77 + (77 - 7)/7. $165 = 77 \times (7 + 7 + 7/7)/7.$ $166 = 7 \times 7 + 7 + (777 - 7)/7.$ $167 = 7 \times 7 + 7 + 777/7$. 168 = 77 + 77 + 7 + 7. 169 = 77 + 77 + 7 + 7 + 7 + 7/7.

 $302 = 7 \times (7 \times 7 - 7) + 7 + 7/7.$

```
170 = 7 \times 7 - 7 + ((7 + 7)/7)^7.
171 = 7 \times 7 + (777 + 77)/7.
172 = 77 + 77 + 7 + 77/7.
173 = 77 + 7 \times (7 + 7) + (7 + 7)/7.
174 = 77 + 7 \times (7 + 7) - 7/7.
175 = 77 + 7 \times (7 + 7).
176 = 77 + 7 \times (7 + 7) + 7/7.
177 = 7 \times 7 + ((7+7)/7)^7.
178 = 77 + 7777/77.
179 = ((7+7)/7)^{(7+7/7)} - 77.
180 = 77 - 7 + (777 - 7)/7.
181 = 77 - 7 + 777/7.
182 = 77 + 7 + 7 \times (7 + 7).
183 = 7 \times (7 + 7) + 77 + 7 + 7/7.
184 = 7 \times 7 + 7 + ((7 + 7)/7)^7.
185 = (7+7) \times (7+7) - 77/7.
186 = (7+7) \times (7+7) - (77-7)/7.
187 = 77 + (777 - 7)/7.
188 = 77 + 777/7.
189 = (7 + 7) \times (7 + 7) - 7.
190 = (7+7) \times (7+7) - 7 + 7/7.
191 = 77 + ((7+7)/7)^7 - 7 - 7.
192 = (7 \times 7 - 7/7) \times (77/7 - 7).
193 = (7+7) \times (7+7) - (7+7+7)/7.
194 = (7+7) \times (7+7) - (7+7)/7.
195 = (7+7) \times (7+7) - 7/7.
196 = (7+7) \times (7+7).
197 = (7+7) \times (7+7) + 7/7.
198 = 77/7 \times (7 + 77/7).
199 = 77 + (777 + 77)/7.
200 = (7 + 7) \times (7 + 7) + 77/7 - 7.
201 = (7+7) \times (7+7) + 7 - (7+7)/7.
202 = (7 + 7) \times (7 + 7) + 7 - 7/7.
203 = (7 + 7) \times (7 + 7) + 7.
204 = (7 + 7) \times (7 + 7) + 7 + 7/7.
205 = 77 + ((7 + 7)/7)^7.
206 = (7+7) \times (7+7) + (77-7)/7.
207 = (7 + 7) \times (7 + 7) + 77/7.
208 = 7 \times (7 + 7) + (777 - 7)/7.
209 = 7 \times (7 + 7) + 777/7.
210 = (7 + 7) \times (7 + 7 + 7/7).
211 = (7+7) \times (7+7) + 7 + 7 + 7/7.
212 = 77 + ((7 + 7)/7)^7 + 7.
213 = 7 \times (7 + 7 + 7) + 77 - 77/7.
214 = (7 + 7) \times (7 + 7) + 7 + 77/7.
215 = 7 \times 7 \times 7 - ((7 + 7)/7)^7.
216 = (7 - 7/7)^{((7+7+7)/7)}.
217 = 7 \times (7 \times 7 - 7) - 77.
218 = 7 \times (7 \times 7 - 7) - 77 + 7/7.
219 = 77 + 7 + 7 + ((7 + 7)/7)^7.
220 = 77 \times (7 + 7 + 7 - 7/7)/7.
221 = 77 + (7 + 77/7) \times (7 + 7/7).
222 = 777 \times (7 + 7)/(7 \times 7).
223 = 77 + 7 \times (7 + 7 + 7) - 7/7.
224 = 77 + 7 \times (7 + 7 + 7).
225 = (7 + 7 + 7/7)^{((7+7)/7)}.
226 = 7 \times (7+7) + ((7+7)/7)^7.
227 = 7 \times (7 \times 7 - 7 - 7) - 7 - 77/7.
228 = (7 \times 7 - 77/7) \times (7 - 7/7).
229 = (7 + 7) \times 777/(7 \times 7) + 7.
230 = (77 \times (7 + 7 + 7) - 7)/7.
231 = 77 + 77 + 77.
232 = 7 \times 7 \times 7 - 777/7.
233 = 7 \times 7 \times 7 - (777 - 7)/7.
234 = (7 + 7 + 7)/7 \times (77 + 7/7).
235 = 7 \times (7 + 7 + 7) + 77 + 77/7.
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236 = (7 + 7) \times (7 + 777/7)/7.
237 = (777 - 7/7) - 7 \times 77.
238 = 777 - 77 \times 7.
239 = 777 - 77 \times 7 + 7/7.
240 = (7 - (7 + 7)/7) \times (7 \times 7 - 7/7).
241 = (7 - 7/7) \times (7 \times 7 - 7) - 77/7.
242 = 77 \times (7 + 7 + 7 + 7/7)/7.
243 = 7 \times (7 \times 7 - 7 - 7) - (7 + 7)/7.
244 = 7 \times (7 \times 7 - 7 - 7) - 7/7.
245 = 7 \times (7 \times 7 - 7 - 7).
246 = 7 \times (7 \times 7 - 7 - 7) + 7/7.
247 = 7 \times (7 \times 7 - 7 - 7) + (7 + 7)/7.
248 = 77 + (7 \times 7 \times 7 \times 7 - 7)/(7 + 7).
249 = ((7+7)/7)^{(7+7/7)} - 7.
250 = (7 \times 7 + 7/7) \times (7 - (7 + 7)/7).
251 = 7 \times (7 \times 7 - 7 - 7) + 7 - 7/7.
252 = (7 + 7) \times (7 + 77/7).
253 = 7 \times (7 \times 7 - 7 - 7) + 7 + 7/7.
254 = 7 \times 7 + 77 + ((7 + 7)/7)^7.
255 = 7 \times 7 \times 7 - 77 - 77/7.
256 = ((7+7)/7)^{(7+7/7)}.
257 = ((7 + 7)/7)^{(7+7/7)} + 7/7.
258 = (7 - 7/7) \times (7 \times 7 - 7 + 7/7).
259 = 7 \times 7 \times 7 - 77 - 7.
260 = 7 \times 7 \times 7 - 77 - 7 + 7/7.
261 = 7 \times 7 \times 7 - 77 - 7 + (7 + 7)/7.
262 = 7 \times 7 \times 7 - 77 + 7 - 77/7.
263 = 7 + ((7+7)/7)^{(7+7/7)}.
264 = 7 \times 7 \times 7 - 77 - (7 + 7)/7.
265 = 7 \times 7 \times 7 - 77 - 7/7.
266 = 7 \times 7 \times 7 - 77.
267 = 7 \times 7 \times 7 - 77 + 7/7.
268 = 7 \times 7 \times 7 - 77 + (7 + 7)/7.
269 = 7 \times (7 \times 77 - 7/7)/(7 + 7).
270 = (7 + 7 + 7/7) \times (7 + 77/7).
271 = 7 \times 7 \times 7 + 7 - 77 - (7 + 7)/7.
272 = 7 \times 7 \times 7 - 77 + 7 - 7/7.
273 = 7 \times 7 \times 7 - 77 + 7.
274 = 7 \times 7 \times 7 - 77 + 7 + 7/7.
275 = (7 + 7 + 77/7) \times 77/7.
276 = 7 \times (7 \times 7 - 7) - 7 - 77/7.
277 = 7 \times 7 \times 7 - 77 + 77/7.
278 = 7 \times 7 \times 7 - 77 + (77 + 7)/7.
279 = 7 \times (7 \times 7 - 7) - 7 - 7 - 7/7.
280 = 7 \times (7 \times 7 - 7) - 7 - 7.
281 = 7 \times (7 \times 7 - 7) - 7 - 7 + 7/7.
282 = (7 \times 7 - (7+7)/7) \times (7-7/7).
283 = 7 \times (7 \times 7 - 7) - 77/7.
284 = 7 \times (7 \times 7 - 7) - (77 - 7)/7.
285 = 7 \times (7 \times 7 - 7) - 7 - (7 + 7)/7.
286 = 7 \times (7 \times 7 - 7) - 7 - 7/7.
287 = 7 \times (7 \times 7 - 7) - 7.
288 = 7 \times (7 \times 7 - 7) - 7 + 7/7.
289 = 7 \times (7 \times 7 - 7) - 7 + (7 + 7)/7.
290 = 7 \times (7 \times 7 - 7) + 7 - 77/7.
291 = 7 \times (7 \times 7 - 7) - (7 + 7 + 7)/7.
292 = 7 \times (7 \times 7 - 7) - (7 + 7)/7.
293 = 7 \times (7 \times 7 - 7) - 7/7.
294 = 7 \times (7 \times 7 - 7).
295 = 7 \times (7 \times 7 - 7) + 7/7.
296 = 7 \times (7 \times 7 - 7) + (7 + 7)/7.
297 = 7 \times (7 \times 7 - 7) + (7 + 7 + 7)/7.
298 = 7 \times (7 \times 7 - 7) - 7 + 77/7.
299 = 7 \times (7 \times 7 - 7) + 7 - (7 + 7)/7.
300 = 7 \times (7 \times 7 - 7) + 7 - 7/7.
301 = 7 \times (7 \times 7 - 7) + 7.
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303 = 7 \times (7 \times 7 - 7) + 7 + (7 + 7)/7.
304 = (7 \times 7 - 77/7) \times (7 + 7/7).
305 = 7 \times (7 \times 7 - 7) + 77/7.
306 = 7 \times (7 \times 7 - 7) + (77 + 7)/7.
307 = 7 \times (7 \times 7 - 7) + 7 + 7 - 7/7.
308 = 77 \times (77/7 - 7).
309 = 7 \times (7 \times 7 - 7) + 7 + 7 + 7/7.
310 = 7 \times (7 \times 7 - 7) + 7 + 7 + (7 + 7)/7.
311 = 7 \times 7 \times 7 - 7 - 7 - 7 - 77 / 7.
312 = 7 \times (7 \times 7 - 7) + 7 + 77/7.
313 = 7 \times (7 \times 7 - 7) + 7 + (77 + 7)/7.
314 = 7 \times (7 \times 7 + 7) - 77 - 7/7.
315 = 7 \times (7 \times 7 + 7) - 77.
316 = 7 \times (7 \times 7 + 7) - 77 + 7/7.
317 = (7 + 77/7)^{((7+7)/7)} - 7.
318 = 7 \times 7 \times 7 - 7 - 7 - 77 / 7.
319 = 7 \times 7 \times 7 - 7 - 7 - (77 - 7)/7.
320 = (7+7/7) \times (7 \times 7 - 7 - (7+7)/7).
321 = 7 \times 7 \times 7 - (77 + 77)/7.
322 = 7 \times 7 \times 7 - 7 - 7 - 7.
323 = 7 \times 7 \times 7 - 7 - 7 - 7 + 7/7.
324 = (77/7 + 7)^{((7+7)/7)}.
325 = 7 \times 7 \times 7 - 7 - 77/7.
326 = 7 \times 7 \times 7 - 7 - (77 - 7)/7.
327 = 7 \times 7 \times 7 - 7 - 7 - (7 + 7)/7.
328 = 7 \times 7 \times 7 - 7 - 7 - 7/7.
329 = 7 \times 7 \times 7 - 7 - 7.
330 = 7 \times 7 \times 7 - 7 - 7 + 7/7.
331 = 7 \times 7 \times 7 - (77 + 7)/7.
332 = 7 \times 7 \times 7 - 77/7.
333 = 7 \times 7 \times 7 - (77 - 7)/7.
334 = 7 \times 7 \times 7 - 7 - (7 + 7)/7.
335 = 7 \times 7 \times 7 - 7 - 7/7.
336 = 7 \times 7 \times 7 - 7.
337 = 7 \times 7 \times 7 - 7 + 7/7.
338 = 7 \times 7 \times 7 - 7 + (7 + 7)/7.
339 = 7 \times 7 \times 7 + 7 - 77/7.
340 = 7 \times 7 \times 7 - (7 + 7 + 7)/7.
341 = 7 \times 7 \times 7 - (7 + 7)/7.
342 = 7 \times 7 \times 7 - 7/7.
343 = 7 \times 7 \times 7.
344 = 7 \times 7 \times 7 + 7/7.
345 = 7 \times 7 \times 7 + (7 + 7)/7.
346 = 7 \times 7 \times 7 + (7 + 7 + 7)/7.
347 = 7 \times 7 \times 7 - 7 + 77/7.
348 = 7 \times 7 \times 7 + 7 - (7 + 7)/7.
349 = 7 \times 7 \times 7 + 7 - 7/7.
350 = 7 \times 7 \times 7 + 7.
351 = 7 \times 7 \times 7 + 7 + 7/7.
352 = 7 \times 7 \times 7 + 7 + (7 + 7)/7.
353 = 7 \times 7 \times 7 + (77 - 7)/7.
354 = 7 \times 7 \times 7 + 77/7.
355 = 7 \times 7 \times 7 + (77 + 7)/7.
356 = 7 \times 7 \times 7 + 7 + 7 - 7/7.
357 = 7 \times 7 \times 7 + 7 + 7.
358 = 7 \times 7 \times 7 + 7 + 7 + 7/7.
359 = 7 \times 7 \times 7 + 7 + 7 + (7 + 7)/7.
360 = (7 \times 7 + 77/7) \times (7 - 7/7).
361 = 7 \times 7 \times 7 + 7 + 77/7.
362 = 7 \times 7 \times 7 + 7 + (77 + 7)/7.
363 = 7 \times 7 \times 7 + 7 + 7 + 7 - 7/7.
364 = 7 \times 7 \times 7 + 7 + 7 + 7.
365 = 7 \times 7 \times 7 + (77 + 77)/7.
366 = 7 \times 7 \times 7 + 7 + 7 + 7 + (7 + 7)/7.
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 $367 = 7 \times 7 \times 7 + 7 + 7 + (77 - 7)/7.$

 $433 = 7 \times (77 - 7 - 7) - 7 - 7/7$.

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368 = 7 \times 7 \times 7 + 7 + 7 + 77/7.
                                                         434 = 7 \times (77 - 7 - 7) - 7.
                                                                                                                   500 = 7 \times (77 - 7) + (77 - 7)/7.
369 = 7 \times 7 \times 7 + 7 + 7 + (77 + 7)/7.
                                                         435 = 7 \times 77 - (777/7 - 7).
                                                                                                                   501 = 7 \times (77 - 7) + 77/7.
370 = 7 \times (7 \times 7 - 7) + 77 - 7/7.
                                                         436 = 7 \times 77 + 7 - (777 - 7)/7.
                                                                                                                   502 = 7 \times (77 - 7) + (7 + 77)/7.
371 = 7 \times (7 \times 7 - 7) + 77.
                                                         437 = 7 \times (77 - 7 - 7) + 7 - 77/7.
                                                                                                                   503 = 7 \times (7 \times 7 + 7) + 777/7.
372 = 7 \times (7 \times 7 - 7) + 77 + 7/7.
                                                         438 = 7 \times 7 \times 7 + 77 + 7 + 77/7.
                                                                                                                   504 = 7 \times (77 - 7) + 7 + 7.
                                                         439 = 7 \times (77 - 7 - 7) - (7 + 7)/7.
                                                                                                                   505 = 7 \times (77 - 7) + 7 + 7 + 7/7.
373 = 7 \times (7 \times 7 + 7) - 7 - (77 + 7)/7.
374 = 7 \times (7 \times 7 + 7) - 7 - 77/7.
                                                         440 = 7 \times (77 - 7 - 7) - 7/7.
                                                                                                                   506 = 7 \times (77 - 7) + 7 + 7 + (7 + 7)/7.
375 = 7 \times 7 \times 7 + 7 + 7 + 7 + 77/7.
                                                         441 = 7 \times (77 - 7 - 7).
                                                                                                                   507 = 7 \times 77 - 7 - 7 - 7 - 77 / 7.
                                                         442 = 7 \times (77 - 7) - 7 \times 7 + 7/7.
376 = (7 \times 7 - (7+7)/7) \times (7+7/7).
                                                                                                                   508 = 7 \times (77 - 7) + 7 + 77/7.
377 = 7 \times (7 \times 7 + 7) - 7 - 7 - 7/7.
                                                         443 = 7 \times (77 - 7 - 7) + (7 + 7)/7.
                                                                                                                   509 = 7 \times (77 + 7) - 77 - (7 + 7)/7.
                                                         444 = 777 \times (77/7 - 7)/7.
                                                                                                                   510 = 7 \times (77 + 7) - 77 - 7/7.
378 = 7 \times (7 \times 7 + 7) - 7 - 7.
379 = 7 \times (7 \times 7 + 7) - 7 - 7 + 7/7.
                                                         445 = 7 \times (77 - 7 - 7) - 7 + 77/7.
                                                                                                                   511 = 7 \times (77 + 7) - 77.
                                                                                                                   512 = ((7+7)/7)^{(7+(7+7)/7)}.
380 = (7 - (7 + 7)/7) \times (77 - 7/7).
                                                         446 = (7 \times 7 + 7) \times (7 + 7/7) - (7 + 7)/7.
381 = 7 \times (7 \times 7 + 7) - 77/7.
                                                         447 = 7 \times (77 - 7 - 7) + 7 - 7/7.
                                                                                                                   513 = 7 \times (77 + 7) - 77 + (7 + 7)/7.
                                                                                                                   514 = 7 \times 77 - 7 - 7 - 77 / 7.
382 = 7 \times (7 \times 7 + 7) - (77 - 7)/7.
                                                         448 = 7 \times (77 - 7 - 7) + 7.
                                                                                                                   515 = 7 \times (77 - 7) + 7 + 7 + 77/7.
383 = 7 \times (7 \times 7 + 7) - 7 - (7 + 7)/7.
                                                         449 = 7 \times (77 - 7 - 7) + 7 + 7/7.
                                                                                                                   516 = 7 \times 77 - 7 - 7 - 7 - (7 + 7)/7.
384 = 7 \times (7 \times 7 + 7) - 7 - 7/7.
                                                         450 = (7 \times 7 + 7/7) \times (7 + (7 + 7)/7).
385 = 7 \times (7 \times 7 + 7) - 7.
                                                         451 = 7 \times 77 - 77 - 77/7.
                                                                                                                   517 = 7 \times 77 - 7 - 7 - 7 - 7/7.
                                                                                                                   518 = 7 \times 77 - 7 - 7 - 7.
386 = 7 \times (7 \times 7 + 7) - 7 + 7/7.
                                                         452 = 7 \times (7 \times 7 + 7 + 7) + 77/7.
387 = 7 \times (7 \times 7 + 7) - 7 + (7 + 7)/7.
                                                         453 = 7 \times 7 \times 7 + (777 - 7)/7.
                                                                                                                   519 = 7 \times 77 - 7 - 7 - 7 + 7/7.
388 = 7 \times (7 \times 7 + 7) + 7 - 77/7.
                                                         454 = 7 \times 777 + 7 \times 7/7.
                                                                                                                   520 = 7 \times 77 - 7 - (77 + 7)/7.
                                                         455 = 7 \times 77 - 77 - 7.
                                                                                                                   521 = 7 \times 77 - 7 - 77/7.
389 = 7 \times (7 \times 7 + 7) - (7 + 7 + 7)/7.
390 = 7 \times (7 \times 7 + 7) - (7 + 7)/7.
                                                         456 = (7 - 7/7) \times (77 - 7/7).
                                                                                                                   522 = 7 \times 77 - 7 - (77 - 7)/7.
391 = 7 \times (7 \times 7 + 7) - 7/7.
                                                         457 = 7 \times 77 - 77 - 7 + (7 + 7)/7.
                                                                                                                   523 = 7 \times 77 - 7 - 7 - (7 + 7)/7.
392 = 7 \times (7 \times 7 + 7).
                                                         458 = 7 \times 77 - 77 + 7 - 77/7.
                                                                                                                   524 = 7 \times 77 - 7 - 7 - 7/7.
393 = 7 \times (7 \times 7 + 7) + 7/7.
                                                         459 = 7 \times 77 - 77 - (7 + 7 + 7)/7.
                                                                                                                   525 = 7 \times 77 - 7 - 7.
                                                         460 = 7 \times 77 - 77 - (7 + 7)/7.
                                                                                                                   526 = 7 \times 77 - 7 - 7 + 7/7.
394 = 7 \times (7 \times 7 + 7) + (7 + 7)/7.
                                                         461 = 7 \times 77 - 77 - 7/7.
                                                                                                                   527 = 77 \times 7 - (77 + 7)/7.
395 = 7 \times (7 \times 7 + 7) + (7 + 7 + 7)/7.
                                                         462 = 7 \times 77 - 77.
                                                                                                                   528 = 7 \times 77 - 77/7.
396 = 7 \times (7 \times 7 + 7) - 7 + 77/7.
397 = 7 \times (7 \times 7 + 7) + 7 - (7 + 7)/7.
                                                         463 = 7 \times 77 - 77 + 7/7.
                                                                                                                   529 = 7 \times 77 + (7 - 77)/7.
398 = 7 \times (7 \times 7 + 7) + 7 - 7/7.
                                                         464 = 7 \times 77 - 77 + (7 + 7)/7.
                                                                                                                   530 = 7 \times 77 - 7 - (7 + 7)/7.
399 = 7 \times (7 \times 7 + 7) + 7.
                                                         465 = (77 - 7) \times 7 - 7 - 7 - 77/7.
                                                                                                                   531 = 7 \times 77 - 7 - 7/7.
400 = 7 \times (7 \times 7 + 7) + 7 + 7/7.
                                                         466 = 7 \times 77 + 77/7 - 77 - 7.
                                                                                                                   532 = 7 \times 77 - 7.
                                                                                                                   533 = 7 \times 77 - 7 + 7/7.
401 = 7 \times (7 \times 7 + 7) + (7 + 7)/7 + 7.
                                                         467 = 7 \times 77 - 77 + 7 - (7 + 7)/7.
402 = 7 \times (7 \times 7 + 7) + (77 - 7)/7.
                                                         468 = (77 + 7/7) \times (7 - 7/7).
                                                                                                                   534 = 7 \times 77 - 7 + (7 + 7)/7.
403 = 7 \times (7 \times 7 + 7) + 77/7.
                                                         469 = 7 \times 77 - 77 + 7.
                                                                                                                   535 = 7 \times 77 + 7 - 77/7.
                                                         470 = 7 \times 77 - 77 + 7 + 7/7.
404 = 7 \times (7 \times 7 + 7) + (77 + 7)/7.
                                                                                                                   536 = 7 \times 77 - (7 + 7 + 7)/7.
405 = 7 \times (7 \times 7 + 7) + 7 + 7 - 7/7.
                                                         471 = 7 \times 7 \times 7 + ((7+7)/7)^7
                                                                                                                   537 = 7 \times 77 - (7 + 7)/7.
                                                         472 = 7 \times (77 - 7) - 7 - 77/7.
                                                                                                                   538 = 7 \times 77 - 7/7.
406 = 7 \times (7 \times 7 + 7) + 7 + 7.
                                                         473 = 7 \times 77 - 77 + 77/7.
                                                                                                                   539 = 7 \times 77.
407 = 7 \times (7 \times 7 + 7) + 7 + 7 + 7/7.
408 = (7 \times 7 + (7+7)/7) \times (7+7/7).
                                                         474 = (77 + (7 + 7)/7) \times (7 - 7/7).
                                                                                                                   540 = 7 \times 77 + 7/7.
409 = 7 \times 7 \times 7 + 77 - 77/7.
                                                         475 = 7 \times (77 - 7) - 7 - 7 - 7/7.
                                                                                                                   541 = 7 \times 77 + (7 + 7)/7.
                                                         476 = 7 \times (77 - 7) - 7 - 7.
410 = 7 \times (7 \times 7 + 7) + 7 + 77/7.
                                                                                                                   542 = 7 \times 77 + (7 + 7 + 7)/7.
411 = 7 \times 77 - ((7 + 7)/7)^7.
                                                         477 = 7 \times (77 - 7) - 7 - 7 + 7/7.
                                                                                                                   543 = 7 \times 77 - 7 + 77/7.
412 = 7 \times 7 \times 7 - 7 + 77 - 7/7.
                                                         478 = 7 + ((7 + 7)/7)^7 + 7 \times 7 \times 7.
                                                                                                                   544 = 7 \times 77 + 7 - (7 + 7)/7.
413 = 7 \times (77 - 7) - 77.
                                                         479 = 7 \times (77 - 7) - 77/7.
                                                                                                                   545 = 7 \times 77 + 7 - 7/7.
414 = 7 \times (77 - 7) - 77 + 7/7.
                                                         480 = (7 \times 7 - 7/7) \times (77 - 7)/7.
                                                                                                                   546 = 7 \times 77 + 7.
415 = (77 + 7 - 7/7) \times (7 - (7 + 7)/7).
                                                         481 = 7 \times (77 - 7) - 7 - (7 + 7)/7.
                                                                                                                   547 = 7 \times 77 + 7 + 7/7.
                                                                                                                   548 = 7 \times 77 + 7 + (7 + 7)/7.
416 = (77 \times 77 - 7)/(7 + 7) - 7.
                                                         482 = 7 \times (77 - 7) - 7 - 7/7.
417 = 77 \times 7 - (777 + 77)/7.
                                                                                                                   549 = 7 \times 77 + (77 - 7)/7.
                                                         483 = 7 \times (77 - 7) - 7.
418 = 77/7 \times (7 \times 7 - 77/7).
                                                         484 = 7 \times (77 - 7) - 7 + 7/7.
                                                                                                                   550 = 7 \times 77 + 77/7.
419 = 7 \times 7 \times 7 + 77 - 7/7.
                                                         485 = 7 \times (77 - 7) - 7 + (7 + 7)/7.
                                                                                                                   551 = 7 \times 77 + (77 + 7)/7.
420 = 7 \times 7 \times 7 + 77.
                                                         486 = 7 \times (77 - 7) + 7 - 77/7.
                                                                                                                   552 = 7 \times 77 + 7 + 7 - 7/7.
421 = 7 \times 7 \times 7 + 77 + 7/7.
                                                         487 = 7 \times (77 - 7) - (7 + 7 + 7)/7.
                                                                                                                   553 = 7 \times 77 + 7 + 7.
422 = 7 \times 7 \times 7 + 77 + (7 + 7)/7.
                                                         488 = 7 \times (77 - 7) - (7 + 7)/7.
                                                                                                                   554 = 7 \times 77 + 7 + 7 + 7/7.
423 = 7 \times 7 \times 7 + 77 + (7 + 7 + 7)/7.
                                                         489 = 7 \times (77 - 7) - 7/7.
                                                                                                                   555 = 7 \times 77 + 7 + 7 + (7 + 7)/7.
424 = 7 \times (77 - 7) - 77 + 77/7.
                                                         490 = 7 \times (77 - 7).
                                                                                                                   556 = 7 \times 77 + 7 + (77 - 7)/7.
                                                                                                                   557 = 7 \times 77 + 7 + 77/7.
425 = 7 + 7 \times 7 \times 7 + 77 - (7 + 7)/7.
                                                         491 = 7 \times (77 - 7) + 7/7.
                                                         492 = 7 \times (77 - 7) + (7 + 7)/7.
426 = 7 \times 7 \times 7 + 77 + 7 - 7/7.
                                                                                                                   558 = 7 \times 7 \times (7+7) - ((7+7)/7)^{7}.
                                                         493 = 7 \times (77 - 7) + (7 + 7 + 7)/7.
427 = 7 \times 7 \times 7 + 77 + 7.
                                                                                                                   559 = 7 \times 77 + 7 + 7 + 7 - 7/7.
428 = 77 \times 7 - 777/7.
                                                         494 = 7 \times (77 - 7) - 7 + 77/7.
                                                                                                                   560 = (77 - 7) \times (7 + 7/7).
429 = 77 \times 7 - (777 - 7)/7.
                                                         495 = 7 \times (77 - 7) + 7 - (7 + 7)/7.
                                                                                                                   561 = 7 \times 77 + 7 + 7 + 7 + 7 + 7/7.
                                                         496 = 7 \times (77 - 7) + 7 - 7/7.
430 = 7 \times (7 \times 7 + 7 + 7) - 77/7.
                                                                                                                   562 = 7 + (7777 - 7)/(7 + 7).
431 = 7 \times 7 \times 7 + 77 + 77/7.
                                                         497 = 7 \times (77 - 7) + 7.
                                                                                                                   563 = 7 + (7777 + 7)/(7 + 7).
432 = (7 \times 7 - 7/7) \times (7 + (7 + 7)/7).
                                                         498 = 7 \times (77 - 7) + 7 + 7/7.
                                                                                                                   564 = 7 \times 77 + 7 + 7 + 77/7.
```

 $499 = 7 \times (77 - 7) + 7 + (7 + 7)/7.$

 $565 = 7 \times 77 + 7 + 7 + (77 + 7)/7.$

```
566 = 7 \times (77 - 7) + 77 - 7/7.
                                                      632 = (7 + 7/7) \times (77 + (7 + 7)/7).
                                                                                                             698 = 777 - 77 - (7 + 7)/7.
567 = 7 \times (77 - 7) + 77.
                                                      633 = 7 \times (77 + 7 + 7) + 7 - 77/7.
                                                                                                             699 = 777 - 77 - 7/7.
568 = 7 \times (77 - 7) + 77 + 7/7.
                                                      634 = 7 \times 77 + 77 + 7 + 77/7.
                                                                                                             700 = 777 - 77.
569 = 7 \times (77 + 7) - 7 - (77 + 7)/7.
                                                      635 = 7 \times (77 + 7 + 7) - (7 + 7)/7.
                                                                                                             701 = 777 - 77 + 7/7.
570 = 7 \times (77 + 7) - 7 - 77/7.
                                                      636 = 7 \times (77 + 7 + 7) - 7/7.
                                                                                                             702 = (77 + 7/7) \times (7 + (7 + 7)/7).
637 = 7 \times (77 + 7 + 7)
                                                                                                             703 = 7 \times 7 \times (7+7) + 7 - (7-77)/7.
572 = 7777/7 - 7 \times 77.
                                                      638 = 7 \times (77 + 7 + 7) + 7/7.
                                                                                                             704 = 7 \times 7 \times (7 + 7) + 7 + 77/7.
573 = 7 \times (77 + 7) - 7 - 7 - 7/7.
                                                      639 = 7 \times (77 + 7 + 7) + (7 + 7)/7.
                                                                                                             705 = 777 - 77 + 7 - (7 + 7)/7.
574 = 7 \times (77 + 7) - 7 - 7.
                                                                                                             706 = 777 - 77 + 7 - 7/7.
                                                      640 = (7 - (7+7)/7) \times ((7+7)/7)^{7}.
575 = 7 \times (77 + 7) - 7 - 7 + 7/7.
                                                      641 = 7 \times (77 + 7 + 7) - 7 + 77/7.
                                                                                                              707 = 777 - 77 + 7.
                                                                                                              708 = 777 - 77 + 7 + 7/7.
576 = 7 \times (77 + 7) - (77 + 7)/7.
                                                      642 = 777 - ((7+7)/7)^7 - 7.
                                                                                                             709 = 777 - 77 + 7 + (7 + 7)/7.
577 = 7 \times (77 + 7) - 77/7.
                                                      643 = 7 \times 77 - 7 + 777/7.
578 = 7 \times (77 + 7) - (77 - 7)/7.
                                                      644 = 7 \times (77 + 7 + 7) + 7.
                                                                                                             710 = 777 - 7 \times 7 - 7 - 77/7.
                                                                                                             711 = 777 - 77 + 77/7
579 = 7 \times (77 + 7) - 7 - (7 + 7)/7.
                                                      645 = 7 \times (77 + 7 + 7) + 7 + 7/7.
                                                                                                             713 = 777 + 7 + 7 - 77 - 7/7.
580 = 7 \times (77 + 7) - 7 - 7/7.
                                                      646 = 7 \times (77 + 7 + 7) + 7 + (7 + 7)/7.
                                                                                                             713 = 777 - 77 + 7 + 7 - 7/7.
581 = 7 \times (77 + 7) - 7.
                                                      647 = 7 + (7 - (7+7)/7) \times ((7+7)/7)^{7}.
                                                                                                             714 = 777 - 77 + 7 + 7.
                                                      648 = 7 \times (77 + 7 + 7) + 77/7.
582 = 7 \times (77 + 7) - 7 + 7/7.
                                                                                                             715 = 777 - 77 + 7 + 7 + 7/7.
583 = 7 \times (77 + 7) - 7 + (7 + 7)/7.
                                                      649 = 777 - ((7+7)/7)^7.
584 = 7 \times (77 + 7) + 7 - 77/7.
                                                      650 = 7 \times 77 + 777/7.
                                                                                                             716 = 7 \times (77 + 7) + ((7 + 7)/7)^7.
585 = 7 \times (77 + 7) - (7 + 7 + 7)/7.
                                                      651 = 777 - 7 \times 7 - 77.
                                                                                                             717 = 777 - 7 \times 7 - 77/7.
                                                      652 = 777 - 7 - 7 - 777/7.
586 = 7 \times (77 + 7) - (7 + 7)/7.
                                                                                                             718 = 777 - 77 + 7 + 77/7.
587 = 7 \times (77 + 7) - 7/7.
                                                      653 = 77 \times (77/7 + 7 \times 7)/7 - 7.
                                                                                                             719 = 777 - 7 - 7 \times 7 - (7 + 7)/7.
588 = 7 \times (77 + 7).
                                                      654 = 7 \times (77 + 7) + 77 - 77/7.
                                                                                                             720 = 777 - 7 \times 7 - 7 - 7/7.
589 = 7 \times (77 + 7) + 7/7.
                                                      655 = 7 + 7 \times (77 + 7 + 7) + 77/7.
                                                                                                             721 = 777 - 7 \times 7 - 7.
590 = 7 \times (77 + 7) + (7 + 7)/7.
                                                      656 = 777 + 7 - ((7 + 7)/7)^7.
                                                                                                             722 = 777 - 7 \times 7 - 7 + 7/7.
591 = 7 \times (77 + 7) + (7 + 7 + 7)/7.
                                                      657 = 77 \times 7 + 7 + 777/7.
                                                                                                             723 = 777 - 7 \times 7 - 7 + (7 + 7)/7.
                                                                                                             724 = 7 \times ((7+7) \times 7 + 7) - 77/7.
592 = 7 \times (77 + 7) - 7 + 77/7.
                                                      658 = 7 \times (77 + 7) - 7 + 77.
                                                      659 = 777 - 7 - 777/7.
593 = 7 \times (77 + 7) + 7 - (7 + 7)/7.
                                                                                                             725 = 777 - 7 \times 7 - (7 + 7 + 7)/7.
                                                      660 = 77/7 \times (7 \times 7 + 77/7).
594 = 7 \times (77 + 7) + 7 - 7/7.
                                                                                                             726 = 777 - 7 \times 7 - (7 + 7)/7.
595 = 7 \times (77 + 7) + 7.
                                                                                                             727 = 777 - 7 \times 7 - 7/7.
                                                      661 = 77 \times 7 + (777 + 77)/7.
596 = 7 \times (77 + 7) + 7 + 7/7.
                                                      662 = 77 + 7 \times (77 + 7) - (7 + 7 + 7)/7.
                                                                                                             728 = 777 - 7 \times 7.
597 = 7 \times (77 + 7) + 7 + (7 + 7)/7.
                                                      663 = 77 + 7 \times (77 + 7) - (7 + 7)/7.
                                                                                                             729 = 777 - 7 \times 7 + 7/7.
598 = 7 \times (77 + 7) + (77 - 7)/7.
                                                      664 = 77 + 7 \times (77 + 7) - 7/7.
                                                                                                             730 = 777 - 7 \times 7 + (7 + 7)/7.
599 = 7 \times (77 + 7) + 77/7.
                                                      665 = (77 + ((77 + 7) \times 7)).
                                                                                                             731 = 777 - 7 \times 7 + (7 + 7 + 7)/7.
600 = (7 + 7/7) \times (77 - (7 + 7)/7).
                                                      666 = 777 - 777/7.
                                                                                                             732 = 777 - 7 \times 7 - 7 + 77/7.
                                                      667 = ((7 \times 77) + (((7 + 7)/7)^7)).
601 = 7 \times (77 + 7) + 7 + 7 - 7/7.
                                                                                                             733 = 7 \times (7 \times (7+7)+7) - (7+7)/7.
                                                      668 = (777 + (((7 - 777) + 7)/7)).
602 = 7 \times (77 + 7) + 7 + 7.
                                                                                                             734 = 7 \times (7 \times (7 + 7) + 7) - 7/7.
                                                      669 = 7 \times 7 \times (7+7) - 7 - (77-7)/7.
603 = 7 \times (77 + 7) + 7 + 7 + 7/7.
                                                                                                             735 = 7 \times (7 \times (7 + 7) + 7).
                                                      670 = 7 \times 7 \times (7+7) - 7 - 7 - (7+7)/7.
604 = 7 \times (77 + 7) + 7 + 7 + (7 + 7)/7.
                                                                                                             736 = 7 \times (7 \times (7 + 7) + 7) + 7/7.
605 = 7 \times 77 + 77 - 77/7
                                                      671 = 7 \times 7 \times (7 + 7) - 7 - 7 - 7/7.
                                                                                                             737 = 7 \times (7 \times (7+7)+7)+(7+7)/7.
606 = 7 \times (77 + 7) + 7 + 77/7.
                                                      672 = (77 + 7) \times (7 + 7/7).
                                                                                                             738 = 777 - 7 \times 7 + (77 - 7)/7.
607 = 7 \times (77 + 7) + 7 + (77 + 7)/7.
                                                      673 = 777 + 7 - 777/7.
                                                                                                             739 = 777 - 7 \times 7 + 77/7.
608 = (7 + 7/7) \times (77 - 7/7).
                                                      674 = 7 \times 77 + 7 + ((7 + 7)/7)^7.
                                                                                                             740 = 7 \times (7 \times (7 + 7) + 7) + 7 -
609 = 7 \times 77 + 77 - 7.
                                                      675 = 7 \times 7 \times (7 + 7) - 77/7.
                                                                                                             (7+7)/7.
610 = 77 \times (7 + 7/7) - 7 + 7/7.
                                                      676 = 7 \times 7 \times (7 + 7) - (77 - 7)/7.
                                                                                                             741 = 7 \times (7 \times (7 + 7) + 7) + 7 - 7/7.
611 = 7 \times 77 + 77 - 7 + (7 + 7)/7.
                                                      677 = 7 \times 7 \times (7+7) - 7 - (7+7)/7.
                                                                                                             742 = 7 \times (7 \times (7 + 7) + 7) + 7.
612 = 7 \times 77 + 77 + 7 - 77/7.
                                                      678 = 7 \times 7 \times (7 + 7) - 7 - 7/7.
                                                                                                             743 = 7 \times (7 \times (7 + 7) + 7) + 7 + 7/7.
613 = 7 \times (77 + 7) + 7 + 7 + 77/7.
                                                      679 = 7 \times 7 \times (7 + 7) - 7.
                                                                                                             744 = 7 \times 77 + 77 + ((7 + 7)/7)'.
614 = 7 \times 77 + 77 - (7 + 7)/7.
                                                      680 = 7 \times 7 \times (7 + 7) - 7 + 7/7.
                                                                                                             745 = 777 - 7 - 7 - 7 - 77 / 7.
615 = 7 \times 77 + 77 - 7/7.
                                                                                                             746 = 7 \times (7 \times (7 + 7) + 7) + 77/7.
                                                      681 = 7 \times 7 \times (7+7) - 7 + (7+7)/7.
616 = 7 \times 77 + 77.
                                                      682 = 7 \times 7 \times (7 + 7) + 7 - 77/7.
                                                                                                             747 = 7 \times (7 \times (7+7)+7)+(77+7)/7.
617 = 7 \times 77 + 77 + 7/7.
                                                      683 = 7 \times 7 \times (7+7) - (7+7+7)/7.
                                                                                                              748 = 777 - 77 + 7 \times 7 - 7/7.
                                                      684 = 7 \times 7 \times (7+7) - (7+7)/7.
618 = 7 \times 77 + 77 + (7 + 7)/7.
                                                                                                             749 = 777 + 7 \times 7 - 77.
619 = 7 \times 77 + 77 + (7 + 7 + 7)/7.
                                                      685 = 7 \times 7 \times (7 + 7) - 7/7.
                                                                                                             750 = (7 + 7 + 7/7) \times (7 \times 7 + 7/7).
620 = 7 \times 77 + 77 - 7 + 77/7.
                                                      686 = 7 \times 7 \times (7 + 7).
                                                                                                             751 = 777 - 7 - 7 - (77 + 7)/7.
621 = (77 - 7 - 7/7) \times (7 + (7 + 7)/7).
                                                      687 = 7 \times 7 \times (7 + 7) + 7/7.
                                                                                                             752 = 777 - 7 - 7 - 77/7
622 = 7 \times 77 + 77 + 7 - 7/7.
                                                      688 = 7 \times 7 \times (7 + 7) + (7 + 7)/7.
                                                                                                             753 = 777 - (7 \times 7 \times 7 - 7)/(7 + 7).
                                                                                                             754 = 777 - 7 - 7 - 7 - (7 + 7)/7.
                                                      689 = 777 - 77 - 77/7.
623 = 7 \times 77 + 77 + 7.
                                                                                                             755 = 777 - 7 - 7 - 7 - 7/7.
624 = (77 + 7/7) \times (7 + 7/7).
                                                      690 = 7 \times 7 \times (7 + 7) - 7 + 77/7.
                                                                                                             756 = 777 - 7 - 7 - 7.
625 = (7 - (7 + 7)/7)(77/7 - 7).
                                                      691 = 7 \times 7 \times (7+7) + 7 - (7+7)/7.
                                                                                                             757 = 777 - 7 - 7 - 7 + 7/7.
626 = 7 \times (77 + 7 + 7) - 77/7.
                                                      692 = 7 \times 7 \times (7 + 7) + 7 - 7/7.
                                                                                                             758 = 777 - 7 - (77 + 7)/7.
627 = 7 \times 77 + 77 + 77/7.
                                                      693 = 7 \times 7 \times (7 + 7) + 7.
                                                                                                             759 = 777 - 7 - 77/7.
628 = 7 \times (7 + 7 + 77) - 7 - (7 + 7)/7.
                                                      694 = 7 \times 7 \times (7 + 7) + 7 + 7/7.
                                                                                                             760 = 777 - 7 - (77 - 7)/7.
629 = 7 \times (77 + 7 + 7) - 7 - 7/7.
                                                      695 = 7 \times 7 \times (7+7) + 7 + (7+7)/7.
630 = 7 \times (77 + 7 + 7) - 7.
                                                      696 = 7 \times 7 \times (7 + 7) + (77 - 7)/7.
                                                                                                             761 = 777 - 7 - 7 - (7 + 7)/7.
631 = 7 \times (7 \times (7 + 7) - 7) - 7 + 7/7.
                                                      697 = 7 \times 7 \times (7 + 7) + 77/7.
                                                                                                             762 = 777 - 7 - 7 - 7/7.
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763 = 777 - 7 - 7.
                                                      829 = (77 - 7/7) \times 77/7 - 7.
                                                                                                            895 = 7 \times ((7 + 7)/7)^7 - 7/7.
764 = 777 - 7 - 7 + 7/7.
                                                      830 = 777 + 7 \times 7 - 7 + 77/7.
                                                                                                            896 = 7 \times ((7 + 7)/7)^7.
765 = 777 - (77 + 7)/7.
                                                      831 = 777 + 7 \times 7 + 7 - (7 + 7)/7.
                                                                                                            897 = 7 \times ((7+7)/7)^7 + 7/7.
766 = 777 - 77/7.
                                                      832 = 777 + 7 \times 7 + 7 - 7/7.
                                                                                                            898 = 777 - 7 + ((7 + 7)/7)^7.
767 = 777 - (77 - 7)/7.
                                                      833 = 777 + 7 \times 7 + 7.
                                                                                                            899 = 777 + (777 + 77)/7.
768 = 777 - 7 - (7 + 7)/7.
                                                      834 = 777 + 7 \times 7 + 7 + 7/7.
                                                                                                            900 = (7 \times 7 + 7/7) \times (77/7 + 7).
769 = 777 - 7 - 7/7.
                                                      835 = 77 \times 77/7 - (77 + 7)/7.
                                                                                                            901 = 7 \times ((7+7)/7)^7 + 7 - (7+7)/7.
770 = 777 - 7.
                                                      836 = 77 \times (77 - 7/7)/7.
                                                                                                            902 = 7 \times ((7+7)/7)^7 + 7 - 7/7.
                                                      837 = 777 + 7 \times 7 + 77/7.
771 = 777 - 7 + 7/7.
                                                                                                            903 = 7 \times ((7+7)/7)^7 + 7.
772 = 777 - 7 + (7 + 7)/7.
                                                      838 = (77 \times 77 - 7 - 7)/7 - 7.
                                                                                                            904 = 7 \times ((7 + 7)/7)^7 + 7 + 7/7.
                                                      839 = (77 \times 77 - 7)/7 - 7.
773 = 777 + 7 - 77/7.
                                                                                                            905 = 777 + ((7 + 7)/7)^7.
774 = 777 - (7 + 7 + 7)/7.
                                                      840 = 77 \times 77/7 - 7.
                                                                                                            906 = 77 \times (77 + 7 - 7/7)/7 - 7.
775 = 777 - (7 + 7)/7.
                                                      841 = (77 \times 77 + 7)/7 - 7.
                                                                                                            907 = 7 \times ((7 + 7)/7)^7 + 77/7.
                                                                                                            908 = 7 \times ((7+7)/7)^7 + (77+7)/7.
776 = 777 - 7/7.
                                                      842 = (77 \times 77 + 7 + 7)/7 - 7.
777 = 777.
                                                      843 = 777 + 77 - 77/7.
                                                                                                            909 = 7 \times ((7+7)/7)^7 + 7 + 7 - 7/7.
                                                                                                            910 = (77 - 7) \times (7 + 7 - 7/7)
778 = 777 + 7/7.
                                                      844 = 777 + 7 \times 7 + 7 + 77/7.
779 = 777 + (7 + 7)/7
                                                      845 = 77 \times 77/7 - (7 + 7)/7.
                                                                                                            911 = 7 \times ((7+7)/7)^7 + 7 + 7 + 7/7.
                                                      846 = 77 \times 77/7 - 7/7.
780 = 777 + 7 + 7 - 77/7.
                                                                                                            912 = (77 + 7) \times (77 - 7/7)/7.
781 = 777 - 7 + 77/7.
                                                      847 = 77 \times 77/7.
                                                                                                            913 = 77 \times (77 + 7 - 7/7)/7.
782 = 777 + 7 - (7 + 7)/7.
                                                      848 = 77 \times 77/7 + 7/7.
                                                                                                            914 = 7 \times ((7+7)/7)^7 + 7 + 77/7.
783 = 777 + 7 - 7/7.
                                                      849 = 77 \times 77/7 + (7 + 7)/7.
                                                                                                            915 = 7777/7 - (7 + 7) \times (7 + 7).
                                                      850 = (77 - 7)/7 \times (77 + 7 + 7/7).
784 = 777 + 7.
                                                                                                            916 = (77 \times (77 + 7) - 7)/7 - 7.
785 = 777 + 7 + 7/7.
                                                      851 = 77 \times (77 + 7/7)/7 - 7.
                                                                                                            917 = 77 \times (77 + 7)/7 - 7.
786 = 777 + 7 + (7 + 7)/7.
                                                      852 = 777 + 77 - (7 + 7)/7.
                                                                                                            918 = (77 \times (77 + 7) + 7)/7 - 7.
787 = 777 + (77 - 7)/7.
                                                      853 = 777 + 77 - 7/7.
                                                                                                            919 = 777 + 7 + 7 + ((7 + 7)/7)^7.
                                                      854 = 777 + 77.
                                                                                                            920 = 77 \times (77 + 7 - 7/7)/7 + 7.
788 = 777 + 77/7.
789 = 777 + (77 + 7)/7.
                                                      855 = 777 + 77 + 7/7.
                                                                                                            921 = 77 \times (77 + 7 + 7/7)/7 - 7 - 7.
790 = 777 + 7 + 7 - 7/7.
                                                      856 = 777 + 77 + (7 + 7)/7.
                                                                                                            922 = 77 \times (77 + 7)/7 - (7 + 7)/7.
791 = 777 + 7 + 7.
                                                      857 = 77 \times (77 + 7/7)/7 - 7/7.
                                                                                                            923 = 77 \times (77 + 7)/7 - 7/7.
792 = 777 + 7 + 7 + 7/7.
                                                      858 = 77 \times (77 + 7/7)/7.
                                                                                                            924 = 77 \times (77 + 7)/7.
793 = 777 + 7 + 7 + (7 + 7)/7.
                                                      859 = 777 + 77 + 7 - (7 + 7)/7.
                                                                                                            925 = (77 \times (77 + 7) + 7)/7.
794 = 777 + 7 + (77 - 7)/7.
                                                      860 = 777 + 77 + 7 - 7/7.
                                                                                                            926 = 77 \times (77 + 7)/7 + (7 + 7)/7.
795 = 777 + 7 + 77/7.
                                                      861 = 777 + 77 + 7.
                                                                                                            927 = 77 \times (77 + 7 - 7/7)/7 + 7 + 7.
796 = 777 + 7 + (77 + 7)/7.
                                                      862 = 777 + 77 + 7 + 7 + 7/7.
                                                                                                            928 = 77 \times (77 + 7 + 7/7)/7 - 7.
797 = 777 + 7 + 7 + 7 - 7/7.
                                                      863 = 777 + 77 + 7 + (7 + 7)/7.
                                                                                                            929 = 7 \times (7 \times 7 + 77 + 7) - (7 + 7)/7.
                                                      864 = (7 + 77/7) \times (7 \times 7 - 7/7).
798 = 777 + 7 + 7 + 7.
                                                                                                            930 = 7 \times (7 \times 7 + 77 + 7) - 7/7.
                                                      865 = 777 + 77 + 77/7.
                                                                                                            931 = 7 \times (7 \times 7 + 77 + 7).
799 = 777 + 7 + 7 + 7 + 7 + 7/7.
800 = (7 \times 7 + 7/7) \times (7 + 7 + (7 + 7)/7).
                                                      866 = 777 + 77 + (77 + 7)/7.
                                                                                                            932 = 7 \times (7 \times 7 + 77 + 7) + 7/7.
801 = 777 + 7 + 7 + (77 - 7)/7.
                                                      867 = 7 \times (77 + 7 \times 7) - 7 - 7 - 7/7.
                                                                                                            933 = 7 \times (7 \times 7 + 77 + 7) + (7 + 7)/7.
802 = 777 + 7 + 7 + 77/7.
                                                      868 = 777 + 77 + 7 + 7.
                                                                                                            934 = 7 \times (7 + ((7 + 7)/7)^7) - 77/7.
                                                                                                            935 = 77 \times (77 + 7 + 7/7)/7.
803 = 777 + 7 + 7 + (77 + 7)/7.
                                                      869 = 77 \times (77 + (7 + 7)/7)/7.
804 = 777 + 77 - 7 \times 7 - 7/7.
                                                      870 = 7 \times (7 \times 7 + 77) - (77 + 7)/7.
                                                                                                            936 = (77 + 7) \times (77 + 7/7)/7.
805 = 777 + 77 - 7 \times 7.
                                                      871 = 7 \times (7 \times 7 + 77) - 77/7.
                                                                                                            937 = 7 \times (7 \times 7 + 7 + 77) + 7 - 7/7.
806 = 777 + 77 - 7 \times 7 + 7/7.
                                                      872 = 777 + 77 + 7 + 77/7.
                                                                                                            938 = 7 \times (7 \times 7 + 7 + 77) + 7.
807 = 7 \times 7 \times (7+7) + ((7+7)/7)^7 - 7.
                                                      873 = 7 \times (7 \times 7 + 77) - 7 - (7 + 7)/7.
                                                                                                            939 = 7 \times (7 \times 7 + 7 + 77) + 7 + 7/7.
808 = 777 + 7 \times 7 - 7 - 77/7.
                                                      874 = 777 + 7 \times (7 + 7) - 7/7.
                                                                                                            940 = 7 + 7 \times (7 \times 7 + 77 + 7) + (7 + 7)
809 = 777 + 7 + 7 + 7 + 77/7.
                                                      875 = 777 + 7 \times (7 + 7).
                                                                                                            7)/7.
810 = (7 - 7/7) \times (7 + ((7 + 7)/7)^7).
                                                      876 = 777 + 7 \times (7 + 7) + 7/7.
                                                                                                            941 = (7 \times 7 + 77 + 7) \times 7 + (77 - 7)/7.
                                                                                                            942 = 7 \times (7 \times 7 + 77 + 7) + 77/7.
811 = 777 - 77 + 777/7.
                                                      877 = 7 \times (7 \times 7 + 77) - 7 + (7 + 7)/7.
812 = 777 + 7 \times 7 - 7 - 7.
                                                      878 = 777 + 7777/77.
                                                                                                            943 = 7 \times (((7+7)/7)^7 + 7) - (7+7)/7.
813 = 777 + 7 \times 7 - 7 - 7 + 7/7.
                                                                                                            944 = (7 + 777/7) \times (7 + 7/7).
                                                      879 = 7 \times (7 \times 7 + 77) - (7 + 7 + 7)/7.
814 = 7 \times 7 \times (7+7) + ((7+7)/7)^{7}.
                                                      880 = (7 + 7/7) \times (777 - 7)/7.
                                                                                                            945 = 7 \times (((7 + 7)/7)^7 + 7).
815 = 777 + 7 \times 7 - 77/7.
                                                      881 = 7 \times (7 \times 7 + 77) - 7/7.
                                                                                                            946 = 7 \times (((7 + 7)/7)^7 + 7) + 7/7.
816 = 777 + 7 \times 7 - (77 - 7)/7.
                                                      882 = 7 \times (7 \times 7 + 77).
                                                                                                            947 = 7 \times (((7+7)/7)^7 + 7) + (7+7)/7.
817 = 777 + 7 \times 7 - 7 - (7 + 7)/7.
                                                      883 = 7 \times (7 \times 7 + 77) + 7/7.
                                                                                                            948 = (77 + 7) \times (77 + (7 + 7)/7)/7.
818 = 777 + 7 \times 7 - 7 - 7/7.
                                                      884 = 7 \times (7 \times 7 + 77) + (7 + 7)/7.
                                                                                                            949 = 7 \times (7 \times 7 + 77 + 7) + 7 + 77/7.
819 = 777 + 7 \times 7 - 7.
                                                      885 = 7 \times ((7+7)/7)^7 - 77/7.
                                                                                                            950 = (7 \times 7 + 7/7) \times (7 + (77 + 7)/7).
820 = 777 + 7 \times 7 - 7 + 7/7.
                                                      886 = 777 + (777 - 7 - 7)/7.
                                                                                                            951 = 7 \times 7 \times (7 + 7 + 7) - 77 - 7/7.
821 = 777 + 7 \times 7 - 7 + (7 + 7)/7.
                                                      887 = 777 + (777 - 7)/7.
                                                                                                            952 = 7 \times (7 + ((7 + 7)/7)^7) + 7.
822 = 777 + 7 \times 7 + 7 - 77/7.
                                                      888 = 777 + 777/7.
                                                                                                            953 = 7 \times 7 \times (7 + 7 + 7) - 77 + 7/7.
                                                                                                            954 = 777 + 7 \times 7 + ((7 + 7)/7)^7.
823 = 777 + 7 \times 7 - (7 + 7 + 7)/7.
                                                      889 = 7 \times ((7+7)/7)^7 - 7.
824 = 777 + 7 \times 7 - (7 + 7)/7.
                                                      890 = 7 \times (7 \times 7 + 77) + 7 + 7/7.
                                                                                                            955 = (7+7) \times (77-7-7/7) - 77/7.
825 = 777 + 7 \times 7 - 7/7.
                                                      891 = 777 - 7 - 7 + ((7 + 7)/7)^{7}.
                                                                                                            956 = 7 \times (7 + ((7 + 7)/7)^7) + 77/7.
                                                      892 = 7 - 77/7 + ((7+7)/7)^7 \times 7.
826 = 777 + 7 \times 7.
                                                                                                            957 = (777 + 77 \times 77 - 7)/7.
827 = 777 + 7 \times 7 + 7/7.
                                                      893 = 7 \times (7 \times 7 + 77) + 77/7.
                                                                                                            958 = (777 + 77 \times 77)/7.
828 = 777 + 7 \times 7 + (7 + 7)/7.
                                                      894 = 7 \times ((7+7)/7)^7 - (7+7)/7.
                                                                                                            959 = 7 \times (7 \times 7 + 77) + 77.
```

```
\begin{array}{lll} 960 = 7 \times (77 + 7 \times 7) + 77 + 7/7. & 974 = (7 + 7) \\ 961 = 77 \times (77 + 77/7)/7 - 7. & 975 = (7 + 7) \\ 962 = (7 + 7) \times (77 - 7) - 7 - 77/7. & 976 = (7 + 7) \\ 963 = (77 - 7) \times (7 + 7) - 7 + (7 - 77)/7. & 977 = (7 + 7) \\ 964 = 7777/7 - 7 \times (7 + 7 + 7). & 978 = (7 + 7) \\ 965 = 777 + 77 + 777/7. & 979 = (7 + 7) \\ 966 = (7 + 7) \times (77 - 7 - 7/7). & 980 = (7 + 7) \\ 967 = 77 \times (7 + 7) - 777/7. & 981 = (7 + 7) \\ 968 = 77 \times (77 + 77/7)/7. & 982 = (7 + 7) \\ 969 = (7 + 7) \times (77 - 7) - 77/7. & 983 = (7 + 7) \\ 970 = (7 + 7) \times (77 - 7) - (77 - 7)/7. & 984 = (7 + 7) \\ 971 = (7 + 7) \times (77 - 7) - (7 + 7)/7. & 985 = (7 + 7) \\ 972 = (7 + 7) \times (77 - 7) - 7 - 7/7. & 986 = (7 + 7) \\ 973 = (7 + 7) \times (77 - 7) - 7. & 987 = (7 + 7) \end{array}
```

```
\begin{array}{l} 974 = (7+7)\times(77-7)-7+7/7. \\ 975 = (7+7)\times(77-7)-7+(7+7)/7. \\ 976 = (7+7)\times(77-7)-(7+7+7)/7. \\ 977 = (7+7)\times(77-7)-(7+7+7)/7. \\ 978 = (7+7)\times(77-7)-(7+7+7)/7. \\ 979 = (7+7)\times(77-7)-7/7. \\ 980 = (7+7)\times(77-7). \\ 981 = (7+7)\times(77-7)+7/7. \\ 982 = (7+7)\times(77-7)+(7+7)/7. \\ 983 = (7+7)\times(77-7)+(7+7+7)/7. \\ 984 = (7+7)\times(77-7)+(7+7+7)/7. \\ 985 = (7+7)\times(77-7)+7-(7+7)/7. \\ 986 = (7+7)\times(77-7)+7-(7+7)/7. \\ 987 = (7+7)\times(77-7)+7. \end{array}
```

 $\begin{array}{l} 988 = (7+7)\times(77-7)+7+7/7. \\ 989 = (7+7)\times(77-7)+7+(7+7)/7. \\ 990 = (7+7+7/7)\times(77-7)+7/7. \\ 991 = (7+7)\times(77-7)+(77+7)/7. \\ 992 = (7+7)\times(77-7)+(77+7)/7. \\ 993 = (7+7)\times(77-7)+7+7-7/7. \\ 994 = (7+7)\times(77-7)+7+7+7-7/7. \\ 995 = (7+7)\times(77-7)+7+7+7/7. \\ 996 = (7+77)\times(77-7)+7+(77-7)/7. \\ 997 = (7+7)\times(77-7)+7+(77-7)/7. \\ 998 = (7+7)\times(77-7)+7+(77-7)/7. \\ 999 = 777\times(7+(7+7)/7)/7. \\ 1000 = (7+7+7-7/7)\times(7\times7+7/7). \end{array}$

11. Representations Using Number 8

101 = 8888/88. 102 = (888 - 8)/8 - 8. $103 = (888 - 8 \times 8)/8.$ 104 = 88 + 8 + 8. 105 = 88 + 8 + 8 + 8/8.106 = 88 + 8 + (88 - 8)/8.107 = 88 + 8 + 88/8. 108 = 8 + (888 - 88)/8.109 = (888 - 8 - 8)/8.110 = (888 - 8)/8. 111 = 888/8. 112 = (888 + 8)/8.113 = (888 + 8 + 8)/8.114 = (888 + 88)/8 - 8. $115 = 888/8 + 8 \times 8/(8 + 8)$. 116 = 8 + 8 + (888 - 88)/8. $117 = 8 \times (8 + 8) - 88/8.$ 118 = 8 + (888 - 8)/8.119 = 8 + 888/8. $120 = 8 \times (8 + 8) - 8$. $121 = 88 \times 88/(8 \times 8)$. 122 = (888 + 88)/8.123 = 88 + 8 + 8 + 8 + 88/8. $124 = 8 \times (8 + 8) - 8 \times 8/(8 + 8).$ $125 = 8 \times (8 + 8) + 8 - 88/8.$ $126 = 8 \times (8 + 8) - (8 + 8)/8.$ $127 = 8 \times (8 + 8) - 8/8.$ $128 = 8 \times (8 + 8).$ $129 = 8 \times (8 + 8) + 8/8.$ $130 = 8 \times (8 + 8) + (8 + 8)/8.$ $131 = 8 \times (8 + 8) - 8 + 88/8.$ $132 = 8 \times (8 + 8) + 8 \times 8/(8 + 8).$ $133 = (8 + 88/8) \times (8 - 8/8).$ $134 = +8 \times (8+8) + 8 - (8+8)/8.$ $135 = 8 \times (8 + 8) + 8 - 8/8.$ $136 = 8 \times (8 + 8) + 8.$ $137 = 8 \times (8 + 8) + 8 + 8/8.$ $138 = 8 \times (8+8) + (88-8)/8.$ $139 = 8 \times (8 + 8) + 88/8.$ $140 = 8 \times (8 + 8) + (88 + 8)/8.$ $141 = 88 + 8 \times 8 - 88/8.$ $142 = 88 + 8 \times 8 - 8 - (8 + 8)/8.$ $143 = 88 + 8 \times 8 - 8 - 8/8$. $144 = 88 + 8 \times 8 - 8$. $145 = 88 + 8 \times 8 - 8 + 8/8$. $146 = 88 + 8 \times 8 - 8 + (8 + 8)/8.$ $147 = 8 \times (8 + 8) + 8 + 88/8.$ 148 = 888/(8 - (8 + 8)/8).

 $149 = 88 + 8 \times 8 + 8 - 88/8.$ $150 = 88 + 8 \times 8 - (8 + 8)/8.$ $151 = 88 + 8 \times 8 - 8/8$. $152 = 88 + 8 \times 8$. $153 = 88 + 8 \times 8 + 8/8.$ $154 = 88 + 8 \times 8 + (8 + 8)/8.$ $155 = 88 + 8 \times 8 - 8 + 88/8.$ $156 = 88 + 8 \times 8 + 8 \times 8/(8 + 8).$ $157 = 88 + 8 \times 8 + (88 - 8)/(8 + 8)$. $158 = 88 + 8 \times 8 + 8 - (8 + 8)/8.$ $159 = 88 + 8 \times 8 + 8 - 8/8.$ $160 = 88 + 8 \times 8 + 8.$ $161 = 88 + 8 \times 8 + 8 + 8/8.$ $162 = 88 + 8 \times 8 + 8 + (8 + 8)/8.$ $163 = 88 + 8 \times 8 + 88/8.$ 164 = 88 + 88 - (88 + 8)/8.165 = 88 + 88 - 88/8.166 = 88 + 88 - 8 - (8 + 8)/8.167 = 88 + 88 - 8 - 8/8. 168 = 88 + 88 - 8. 169 = 88 + 88 - 8 + 8/8. $170 = (8 + 8 + 8/8) \times (88 - 8)/8.$ $171 = (8 + 88/8) \times (8 + 8/8).$ $172 = 88 + 88 - 8 \times 8/(8 + 8).$ 173 = 88 + 88 + 8 - 88/8.174 = 88 + 88 - (8 + 8)/8.175 = 88 + 88 - 8/8.176 = 88 + 88. 177 = 88 + 88 + 8/8. 178 = 88 + 88 + (8 + 8)/8.179 = 88 + 88 - 8 + 88/8. $180 = (88 + (8 + 8)/8) \times (8 + 8)/8.$ $181 = 8 \times (8 + 8 + 8) - 88/8.$ $182 = 8 \times (8 + 8 + 8) - 8 - (8 + 8)/8.$ 183 = 88 + 88 + 8 - 8/8.184 = 88 + 88 + 8. 185 = 88 + 88 + 8 + 8/8.186 = 88 + 88 + (88 - 8)/8.187 = 88 + 88 + 88/8. 188 = 88 + (888 - 88)/8.189 = 88 + 8888/88. $190 = 8 \times (8 + 8 + 8) - (8 + 8)/8.$ $191 = 8 \times (8 + 8 + 8) - 8/8.$ $192 = 8 \times (8 + 8 + 8).$ $193 = 8 \times (8 + 8 + 8) + 8/8.$ $194 = 8 \times (8 + 8 + 8) + (8 + 8)/8.$ 195 = 88 + 88 + 8 + 88/8.

 $196 = 8 \times (8 + 8 + 8) + 8 \times 8/(8 + 8).$

197 = 88 + (888 - 8 - 8)/8.198 = 88 + (888 - 8)/8.199 = 88 + 888/8. $200 = 8 \times (8 + 8 + 8) + 8.$ $201 = 8 \times (8 + 8 + 8) + 8 + 8/8.$ $202 = 8 \times (8 + 8 + 8) + (88 - 8)/8.$ $203 = 8 \times (8 + 8 + 8) + 88/8.$ $204 = 8 \times (8 + 8 + 8) + (88 + 8)/8.$ $205 = 8 \times (8 + 8) + 88 - 88/8.$ 206 = 88 + 8 + (888 - 8)/8.207 = 88 + 8 + 888/8. $208 = 88 + 8 \times (8 + 8) - 8.$ $209 = 88 + 8 \times (8 + 8) - 8 + 8/8.$ 210 = 88 + (888 + 88)/8. $211 = 8 \times (8 + 8 + 8) + 8 + 88/8.$ $212 = 8 \times (8 + 8 + 8) + 8 + (88 + 8)/8.$ $213 = 88 + 8 \times (8 + 8) + 8 - 88/8.$ $214 = 88 + 8 \times (8 + 8) - (8 + 8)/8.$ $215 = 88 + 8 \times (8 + 8) - 8/8.$ $216 = 88 + 8 \times (8 + 8)$. $217 = 88 + 8 \times (8 + 8) + 8/8.$ $218 = 88 + 8 \times (8 + 8) + (8 + 8)/8.$ $219 = 88 + 8 \times (8 + 8) - 8 + 88/8.$ $220 = (888 - 8) \times (8 + 8)/(8 \times 8).$ $221 = 888 \times (8 + 8)/(8 \times 8) - 8/8.$ $222 = 888 \times (8 + 8)/(8 \times 8).$ $223 = 88 + 8 \times (8 + 8) + 8 - 8/8.$ $224 = 88 + 8 \times (8 + 8) + 8$. $225 = (8 + 8 - 8/8)^{((8+8)/8)}.$ $226 = (888 + 8 + 8) \times (8 + 8)/(8 \times 8).$ $227 = 88 + 8 \times (8 + 8) + 88/8.$ $228 = (8 + 88/8) \times (88 + 8)/8.$ $229 = 8 \times (8 + 8) + 8888/88.$ $230 = 8 + 888 \times (8 + 8)/(8 \times 8).$ $231 = 8 \times (8 + 8) - 8 + 888/8.$ $232 = 88 + 88 + 8 \times 8 - 8.$ $233 = 8 + (8 + 8 - 8/8)^{((8+8)/8)}.$ $234 = (8+8+8+(8+8)/8) \times (8+8/8).$ $235 = 8 \times (8 + 8) + 88 + 8 + 88/8.$ $236 = ((8+8)/8)^8 - 8 - (88+8)/8.$ $237 = ((8+8)/8)^8 - 8 - 88/8.$ $238 = 8 \times (8 + 8) + (888 - 8)/8.$ $239 = 8 \times (8 + 8) + 888/8.$ $240 = 88 + 88 + 8 \times 8$. $241 = (8 + 8) \times (8 + 8 - 8/8) + 8/8.$ $242 = (88 + 88) \times 88/(8 \times 8).$ $243 = ((8+8+8)/8)^{(8-(8+8+8)/8)}.$

 $244 = (8+8) \times (8+8) - (88+8)/8.$

```
247 = (8 + 8) \times (8 + 8) - 8 - 8/8.
248 = (8 + 8) \times (8 + 8) - 8.
249 = (8 + 8) \times (8 + 8) - 8 + 8/8.
250 = (8+8) \times (8+8) - 8 + (8+8)/8.
251 = 88 + 88 + 8 \times 8 + 88/8.
252 = 8 \times (8 \times 8 \times 8 - 8)/(8 + 8).
253 = (8 + 8) \times (8 + 8) + 8 - 88/8.
254 = (8+8) \times (8+8) - (8+8)/8.
255 = (8 + 8) \times (8 + 8) - 8/8.
256 = (8 + 8) \times (8 + 8).
257 = (8 + 8) \times (8 + 8) + 8/8.
258 = (8+8) \times (8+8) + (8+8)/8.
259 = (8+8) \times (8+8) + (8+8+8)/8.
260 = 8 \times (8 \times 8 \times 8 + 8)/(8 + 8).
261 = (8 + 8 + 8) \times (88 - 8/8)/8.
262 = (8+8) \times (8+8) + 8 - (8+8)/8.
263 = (8 + 8) \times (8 + 8) + 8 - 8/8.
264 = (8 + 8) \times (8 + 8) + 8.
265 = (8 + 8) \times (8 + 8) + 8 + 8/8.
266 = (8+8) \times (8+8) + 8 + (8+8)/8.
267 = (8 + 8) \times (8 + 8) + 88/8.
268 = (8+8) \times (8+8) + (88+8)/8.
269 = 8 \times (8 + 8 + 8) + 88 - 88/8.
270 = (8 + 8) \times (8 + 8) + 8 + 8 -
(8+8)/8.
271 = (8 + 8) \times (8 + 8 + 8/8) - 8/8.
272 = (8 + 8) \times (8 + 8 + 8/8).
273 = (8 + 8) \times (8 + 8 + 8/8) + 8/8.
274 = (8 + 8) \times (8 + 8) + 8 + 8 + 8
(8+8)/8.
275 = (8 + 8) \times (8 + 8) + 8 + 88/8.
276 = (8+8) \times (8+8) + 8 + (88+8)/8.
277 = 88 + 8 \times (8 + 8 + 8) - (8 + 8)
8 + 8)/8.
278 = (8 \times (8+8) + 88/8) \times (8+8)/8.
279 = 8 \times (8 + 8 + 8) + 88 - 8/8.
280 = 8 \times (8 + 8 + 8) + 88.
281 = 8 \times (8 + 8 + 8) + 88 + 8/8.
282 = 8 \times (8 + 8 + 8) + 88 + (8 + 8)/8.
283 = 8 \times (8 + 8 + 8) + 88 - 8 + 88/8.
284 = 8 \times 8 \times (8 \times 8 + 8 - 8/8)/(8 + 8).
285 = ((8 + 8 + 8) \times (88 + 8) - 8 -
8 - 8)/8.
286 = ((8+8+8) \times (88+8) - 8 - 8)/8.
287 = ((8+8+8) \times (88+8) - 8)/8.
288 = (8 + 8 + 8) \times (88 + 8)/8.
289 = (8 + 8 + 8/8)^{((8+8)/8)}.
290 = ((8+8+8) \times (88+8) + 8 + 8)/8.
291 = 8 \times (8 + 8 + 8) + 88 + 88/8.
292 = 8 \times (8+8+8) + 88 + (88+8)/8.
293 = ((8+8)/8)^8 + 888/(8+8+8).
294 = 8 + 8 \times 8 + 888 \times (8 + 8)/(8 \times 8).
295 = 8 \times 8 \times (8 \times 8 + 8)/(8 + 8) +
8 - 8/8.
296 = 8 \times 888/(8 + 8 + 8).
297 = (8 + 8 + 8/8)^{((8+8)/8)} + 8.
298 = 8 \times 888/(8+8+8) + (8+8)/8.
299 = 8 \times 8 \times (8 \times 8 + 8)/(8 + 8) + 88/8.
300 = 8 \times 8 \times (8 \times 8 + 88/8)/(8 + 8).
301 = (8+8) \times (8+8) + 8 \times 8 - 8 -
88/8.
302 = (8+8) \times (8 \times 8 + 88 - 8/8)/8.
303 = (8 + 8) \times (8 + 88/8) - 8/8.
304 = (8 + 8) \times (8 + 88/8).
```

 $245 = (8 + 8) \times (8 + 8) - 88/8.$

 $246 = (8+8) \times (8+8) - (88-8)/8.$

```
305 = (8 + 8) \times (8 + 88/8) + 8/8.
306 = (8+8+(8+8)/8) \times (8+8+8/8).
307 = 8 \times (88 \times 8 - 88)/(8 + 8) - 8/8.
308 = 8 \times (88 \times 8 - 88)/(8 + 8).
309 = (8 + 8 + 8) \times (888/8 - 8)/8.
310 = 88 + 888 \times (8 + 8)/(8 \times 8).
311 = 8 \times (8 + 8 + 8) + 8 + 888/8.
312 = (8+8) \times (8+8) + 8 \times 8 - 8.
313 = (8+8) \times (8+8) + 8 \times 8 - 8 + 8/8.
314 = (8+8) \times (8+8) + 8 \times 8 - 8 +
(8 + 8)/8.
315 = (8 \times 8 - 8/8) \times (8 - (8 + 8 + 8)/8).
316 = (8 + 8) \times (8 + 8) + 8 \times (8 - 8)
8/(8+8)).
317 = (8+8) \times (8+8) + 8 \times 8 + 8 -
88/8.
318 = (8 + 8) \times (8 + 8) + 8 \times 8 -
(8+8)/8.
319 = (8+8) \times (8+8) + 8 \times 8 - 8/8.
320 = (8 + 8) \times (8 + 8) + 8 \times 8.
321 = (8+8) \times (8+8) + 8 \times 8 + 8/8.
322 = (8 + 8) \times (8 + 8) + 8 \times 8 +
(8+8)/8.
323 = (8+8) \times (8+8) + 8 \times 8 - 8 +
88/8.
324 = (8 + 8 + (8 + 8)/8)^{((8+8)/8)}.
325 = 888 \times (8 + 8 + 8)/(8 \times 8) - 8.
326 = (8+8) \times (8+8) + 8 \times 8 + 8 -
(8+8)/8.
327 = 8 \times (8 + 8) + 88 + 888/8.
328 = (8+8) \times (8+8) + 8 \times 8 + 8.
329 = (8-8/8) \times (8 \times 8 - 8 - 8 - 8/8).
330 = (8-(8+8)/8) \times (8 \times 8-8-8/8).
331 = (8+8) \times (8+8) + 88/8 + 8 \times 8.
332 = (888 \times (88/8 - 8) - 8)/8.
333 = 888 \times (88/8 - 8)/8.
334 = 8 \times 8 \times 8 - 88 - 88 - (8 + 8)/8.
335 = 8 \times 8 \times 8 - 88 - 88 - 8/8.
336 = 8 \times 8 \times 8 - 88 - 88.
337 = 8 \times (8 \times 8 - 8) - 888/8.
338 = (8+8) \times (8+8) + 88 - 8 +
(8+8)/8.
339 = (8+8) \times (8+8) + 8 \times 8 + 8 + 8
340 = 8 \times 8 \times 88/(8+8) - (88+8)/8.
341 = 888 \times (88/8 - 8)/8 + 8.
342 = (8 - (8 + 8)/8) \times (8 \times 8 - 8 + 8/8).
343 = (8 - 8/8)^{((8+8+8)/8)}.
344 = (8 + 8) \times (8 + 8) + 88.
345 = (8 + 8) \times (8 + 8) + 88 + 8/8.
346 = (8+8) \times (8+8) + 88 + (8+8)/8.
347 = 8 \times 8 \times 88/(8+8) - 8 - 8 + 88/8.
348 = 8 \times (8 \times 88 - 8)/(8 + 8).
349 = 8 \times 8 \times 88/(8+8) + 8 - 88/8.
350 = 8 \times 8 \times 88/(8+8) - (8+8)/8.
351 = 8 \times 8 \times 88/(8 + 8) - 8/8.
352 = 8 \times 8 \times 88/(8 + 8).
353 = 8 \times 8 \times 88/(8 + 8) + 8/8.
354 = 8 \times 8 \times 88/(8+8) + (8+8)/8.
355 = 8 \times 8 \times 88/(8+8) + (8+8+8)/8.
356 = 8 \times 8 \times (88 + 8/8)/(8 + 8).
357 = (8 + 8 + 8) \times (8 + 888/8)/8.
358 = 8 \times (8 \times 8 - 8) - 88 - (8 + 8)/8.
359 = 8 \times (8 \times 8 - 8) - 88 - 8/8.
360 = 8 \times (8 \times 8 - 8) - 88.
361 = (8 + 88/8)^{((8+8)/8)}.
```

```
362 = 8 \times (8 \times 8 - 8) - 88 + (8 + 8)/8.
363 = 8 \times 8 \times 88/(8 + 8) + 88/8.
364 = 8 + 8 \times (8 \times 88 + 8)/(8 + 8).
365 = (8+8) \times (8+8+8) - 8 - 88/8.
366 = 888 - 8 \times 8 \times 8 - 8 - (8 + 8)/8.
367 = (8+8) \times (8+8) + 888/8.
368 = 888 - 8 \times 8 \times 8 - 8.
369 = (8 + 88/8)^{((8+8)/8)} + 8.
370 = 888 - 8 \times 8 \times 8 - 8 + (8 + 8)/8.
371 = 8 \times (8 \times 8 - 8) - 88 + 88/8.
372 = (8+8) \times (8+8+8) - (88+8)/8.
373 = (8+8) \times (8+8+8) - 88/8.
374 = 888 - 8 \times 8 \times 8 - (8 + 8)/8.
375 = 888 - 8 \times 8 \times 8 - 8/8.
376 = 888 - 8 \times 8 \times 8.
377 = 888 - 8 \times 8 \times 8 + 8/8.
378 = 888 - 8 \times 8 \times 8 + (8 + 8)/8.
379 = 888 - 8 \times 8 \times 8 + (8 + 8 + 8)/8.
380 = (8 + 8) \times (8 + 8 + 8) - 8 \times
8/(8+8).
381 = 8 \times (8 \times 8 - 8 - 8) + 8 - 88/8.
382 = 8 \times (8 \times 8 - 8 - 8) - (8 + 8)/8.
383 = (8+8) \times (8+8+8) - 8/8.
384 = (8+8) \times (8+8+8).
385 = (8+8) \times (8+8+8) + 8/8.
386 = (8+8) \times (8+8+8) + (8+8)/8.
387 = (8+8) \times (8+8+8) + (8+8)
8 + 8)/8.
388 = (8 + 8) \times (8 + 8 + 8) + 8 \times
8/(8+8).
389 = (8+8) \times (8+8+8) + 8 -
(8+8+8)/8.
390 = (8+8) \times (8+8+8) + 8 -
(8+8)/8.
391 = (8+8) \times (8+8+8) + 8 - 8/8.
392 = (8+8) \times (8+8+8) + 8.
393 = 8 \times 8 \times 8 - 8 - 888/8.
394 = (8+8) \times (8+8+8) + (88-8)/8.
395 = (8+8) \times (8+8+8) + 88/8.
396 = (8+8) \times (8+8+8) + (88+8)/8.
397 = 8 \times (8 \times 88 + 88)/(8 + 8) + 8/8.
398 = (8 + 8) \times (88 + 888/8)/8.
399 = (8+8) \times (8+8+8) + 8 + 8 - 8/8.
400 = (8+8) \times (8+8+8) + 8 + 8.
401 = 8 \times 8 \times 8 - 888/8.
402 = 8 \times 8 \times 8 - (888 - 8)/8.
403 = 8 \times (8 \times 8 - 8 - 8) + 8 + 88/8.
404 = 8 + 88 \times (8 \times 8 + 8)/(8 + 8).
405 = (8 + 8/8) \times (8 \times 8 - 8 - 88/8).
406 = (8 + 8 + 8) \times (8 + 8 + 8/8) -
(8+8)/8.
407 = (8+8+8) \times (8+8+8/8) - 8/8.
408 = (8 + 8 + 8) \times (8 + 8 + 8/8).
409 = 8 \times 8 \times 8 + 8 - 888/8.
410 = 8 \times 8 \times 8 + 8 - (888 - 8)/8.
88/8.
412 = 8 \times 8 \times (888/8 - 8)/(8 + 8).
413 = 8 \times 8 \times 8 - 88 - 88/8.
414 = 8 \times 8 \times 8 - 88 - (88 - 8)/8.
415 = 8 \times 8 \times 8 - 88 - 8 - 8/8.
416 = 8 \times 8 \times 8 - 88 - 8.
417 = 8 \times 8 \times 8 - 88 - 8 + 8/8.
418 = 8 \times 8 \times 8 - 88 - 8 + (8 + 8)/8.
419 = 8 \times 8 \times 8 - 88 - 8 + (8 + 8 + 8)/8.
420 = 8 \times 8 \times 8 - 88 - 8 \times 8/(8 + 8).
```

 $550 = 8 \times (88 - 8) - 88 - (8 + 8)/8$.

```
421 = 8 \times 8 \times 8 - 88 - (8 + 8 + 8)/8.
422 = 8 \times 8 \times 8 - 88 - (8 + 8)/8.
423 = 8 \times 8 \times 8 - 88 - 8/8.
424 = 8 \times 8 \times 8 - 88.
425 = 8 \times 8 \times 8 - 88 + 8/8.
426 = 8 \times 8 \times 8 - 88 + (8 + 8)/8.
427 = 8 \times 8 \times 8 - 88 + (8 + 8 + 8)/8.
428 = 8 \times 8 \times 8 - 88 + 8 \times 8/(8 + 8).
429 = 8 \times (8 \times 8 - 8) - 8 - 88/8.
430 = 8 \times 8 \times 8 + 8 - 88 - (8 + 8)/8.
431 = 8 \times 8 \times 8 + 8 - 88 - 8/8.
432 = 8 \times 8 \times 8 - 88 + 8.
433 = 8 \times 8 \times 8 - 88 + 8 + 8/8.
434 = (8 - 8/8) \times (8 \times 8 - (8 + 8)/8).
435 = 8 \times 8 \times 8 - 88 + 88/8.
436 = 8 \times 888/(8 + 8) - 8.
437 = 8 \times (8 \times 8 - 8) - 88/8.
438 = 8 \times (8 \times 8 - 8) - (88 - 8)/8.
439 = 8 \times (8 \times 8 - 8) - 8 - 8/8.
440 = 8 \times (8 \times 8 - 8) - 8.
441 = 8 \times (8 \times 8 - 8) - 8 + 8/8.
442 = 8 \times (8 \times 8 - 8) - 8 + (8 + 8)/8.
443 = 8 \times 888/(8 + 8) - 8/8.
444 = 8 \times 888/(8 + 8).
445 = 8 \times (8 \times 8 - 8) + 8 - 88/8.
446 = 8 \times (8 \times 8 - 8) - (8 + 8)/8.
447 = 8 \times (8 \times 8 - 8) - 8/8.
448 = 8 \times (8 \times 8 - 8).
449 = 8 \times (8 \times 8 - 8) + 8/8.
450 = 8 \times (8 \times 8 - 8) + (8 + 8)/8.
451 = 8 \times (8 \times 8 - 8) - 8 + 88/8.
452 = 8 \times 888/(8 + 8) + 8.
453 = 8 \times (8 \times 8 - 8) + 8 - (8 + 8 + 8)/8.
454 = 8 \times (8 \times 8 - 8) + 8 - (8 + 8)/8.
455 = 8 \times (8 \times 8 - 8) + 8 - 8/8.
456 = 8 \times (8 \times 8 - 8) + 8.
457 = 8 \times (8 \times 8 - 8) + 8 + 8/8.
458 = 8 \times (8 \times 8 - 8) + 8 + (8 + 8)/8.
459 = 8 \times (8 \times 8 - 8) + 88/8.
460 = 8 \times (8 \times 8 - 8) + (88 + 8)/8.
461 = 8 \times (8 \times 8 - 8) + 8 + 8 - (8 + 8)
8 + 8)/8.
462 = (8 \times 8 + (8 + 8)/8) \times (8 - 8/8).
463 = 8 \times (8 \times 8 - 8) + 8 + 8 - 8/8.
464 = 8 \times (8 \times 8 - 8) + 8 + 8.
465 = 8 \times (8 \times 8 - 8) + 8 + 8 + 8/8.
466 = 8 \times (8 \times 8 - 8) + 8 + 8 + (8 + 8)/8.
467 = 8 \times (8 \times 8 - 8) + 8 + 88/8.
468 = 8 \times 8 \times 8 - 8 \times 88/(8 + 8).
469 = (8-8/8) \times (8 \times 8 + (8+8+8)/8).
470 = 8 \times (8 \times 8 - 8) + (88 + 88)/8.
471 = (8+8) \times (8+8+8) + 88 - 8/8.
472 = (8 + 8) \times (8 + 8 + 8) + 88.
473 = (8+8) \times (8+8+8) + 88 + 8/8.
474 = (88 - 8 - 8/8) \times (8 - (8 + 8)/8).
475 = 8 \times 8 \times 8 - 888/(8 + 8 + 8).
476 = 8 \times (8 + 8/(8 + 8)) \times (8 - 8/8).
477 = 8 \times 8 \times 8 - 8 - 8 - 8 - 8 - 88/8.
478 = 8 \times 8 \times (8 - 8/(8 + 8)) - (8 + 8)/8.
479 = 8 \times 8 \times (8 - 8/(8 + 8)) - 8/8.
480 = 8 \times 8 \times (8 - 8/(8 + 8)).
481 = 8 \times 8 \times (8 - 8/(8 + 8)) + 8/8.
482 = 8 \times 8 \times (8 - 8/(8 + 8)) + (8 + 8)/8.
483 = 8 \times 8 \times (8 - 8/(8 + 8)) + (8 +
8 + 8)/8.
```

 $484 = ((88 + 88)/8)^{((8+8)/8)}.$

```
485 = 8 \times 8 \times 8 - 8 - 8 - 88/8.
486 = (88 - 8 + 8/8) \times (8 - (8 + 8)/8).
487 = 8 \times 8 \times 8 - 8 - 8 - 8 - 8 / 8.
488 = 8 \times 8 \times 8 - 8 - 8 - 8.
489 = 8 \times 8 \times 8 - 8 - 8 - 8 + 8/8.
490 = 8 \times 8 \times 8 - 8 - 8 - 8 + (8 + 8)/8.
491 = 8 \times 8 \times 8 - 8 - 8 - 8 + (8 + 8)
8 + 8)/8.
492 = 8 \times (8 \times 8 - 8/(8 + 8)) - 8 - 8.
493 = 8 \times 8 \times 8 - 8 - 88/8.
494 = 8 \times 8 \times 8 - 8 - 8 - (8 + 8)/8.
495 = 8 \times 8 \times 8 - 8 - 8 - 8/8.
496 = 8 \times 8 \times 8 - 8 - 8.
497 = 8 \times 8 \times 8 - 8 - 8 + 8/8.
498 = 8 \times 8 \times 8 - 8 - 8 + (8 + 8)/8.
499 = 8 \times 8 \times 8 - (88 + 8 + 8)/8.
500 = 8 \times 8 \times 8 - (88 + 8)/8.
501 = 8 \times 8 \times 8 - 88/8.
502 = 8 \times 8 \times 8 - (88 - 8)/8.
503 = 8 \times 8 \times 8 - 8 - 8/8.
504 = 8 \times 8 \times 8 - 8.
505 = 8 \times 8 \times 8 - 8 + 8/8.
506 = 8 \times 8 \times 8 - 8 + (8 + 8)/8.
507 = 8 \times 8 \times 8 - 8 - 8 + 88/8.
508 = 8 \times (8 \times 8 - 8/(8 + 8)).
509 = 8 \times 8 \times 8 - (8 + 8 + 8)/8.
510 = 8 \times 8 \times 8 - (8 + 8)/8.
511 = 8 \times 8 \times 8 - 8/8.
512 = 8 \times 8 \times 8.
513 = 8 \times 8 \times 8 + 8/8.
514 = 8 \times 8 \times 8 + (8 + 8)/8.
515 = 8 \times 8 \times 8 - 8 + 88/8.
516 = 8 \times (8 \times 8 + 8/(8 + 8)).
517 = 8 \times 8 \times 8 + 8 - (8 + 8 + 8)/8.
518 = 8 \times 8 \times 8 + 8 - (8 + 8)/8.
519 = 8 \times 8 \times 8 + 8 - 8/8.
520 = 8 \times 8 \times 8 + 8.
521 = 8 \times 8 \times 8 + 8 + 8/8.
522 = 8 \times 8 \times 8 + (88 - 8)/8.
523 = 8 \times 8 \times 8 + 88/8.
524 = 8 \times 8 \times 8 + (88 + 8)/8.
525 = 8 \times 8 \times 8 + 8 + 8 + 8 - 88/8.
526 = 8 \times 8 \times 8 + 8 + 8 - (8 + 8)/8.
527 = 8 \times 8 \times 8 + 8 + 8 - 8/8.
528 = 8 \times 8 \times 8 + 8 + 8.
529 = 8 \times 8 \times 8 + 8 + 8 + 8/8.
530 = 8 \times 8 \times 8 + 8 + 8 + (8 + 8)/8.
531 = 8 \times 8 \times 8 + 8 + 88/8.
532 = 8 \times 8 \times 8 + 8 + (88 + 8)/8.
533 = 8 \times 8 \times 8 + 8 + (88 + 8 + 8)/8.
534 = 8 \times 8 \times 8 + 8 + 8 + 8 - (8 + 8)/8.
535 = 8 \times 8 \times 8 + 8 + 8 + 8 - 8/8.
536 = 8 \times (8 \times 8 - 8) + 88.
537 = 8 \times (8 \times 8 - 8) + 88 + 8/8.
538 = 8 \times (8 \times 8 - 8) + 88 + (8 + 8)/8.
539 = 8 \times 8 \times 8 + 8 + 8 + 88/8.
540 = 8 \times 8 \times 8 + 8 + 8 + (88 + 8)/8.
541 = (88 - 8) \times 8 - 88 - 88/8.
542 = 8 \times 8 \times (8 + 8/(8 + 8)) - (8 + 8)/8.
543 = 8 \times 8 \times (8 + 8/(8 + 8)) - 8/8.
544 = 8 \times 8 \times (8 + 8/(8 + 8)).
545 = 8 \times 8 \times (8 + 8/(8 + 8)) + 8/8.
546 = 8 \times 8 \times (8 + 8/(8 + 8)) + (8 + 8)/8.
547 = 8 \times 8 \times 8 + 8 + 8 + 8 + 88/8.
548 = 8 \times (88 - 8 - 8/(8 + 8)) - 88.
549 = 8 \times (8 \times 8 + 8) - 8 - 8 - 88/8.
```

```
551 = 8 \times (88 - 8) - 88 - 8/8.
552 = 8 \times (88 - 8) - 88.
553 = 8 \times (88 - 8) - 88 + 8/8.
554 = 8 \times (88 - 8) - 88 + (8 + 8)/8.
555 = 888 \times (8 - (8 + 8 + 8)/8)/8.
556 = 8 \times 8 \times 8 + 8 \times 88/(8 + 8).
557 = 8 \times (8 \times 8 + 8) - 8 - 88/8.
558 = (8 + 8/8) \times (8 \times 8 - (8 + 8)/8).
559 = (8 \times 8 - 8) \times 8 + 888/8.
560 = 8 \times 8 \times 8 + 8 \times 8 - 8 - 8.
561 = 8 \times 8 \times 8 + 8 \times 8 - 8 - 8 + 8/8.
562 = 8 \times (8 + 8 \times 8) - 8 - 8 + (8 + 8)/8.
563 = 8 \times (8 \times 8 + 8) - (88 + 8 + 8)/8.
564 = 8 \times (8 \times 8 + 8 - 8/(8 + 8)) - 8.
565 = 8 \times (8 \times 8 + 8) - 88/8.
566 = 8 \times (8 \times 8 + 8) - 8 - (8 + 8)/8.
567 = (8 + 8/8) \times (8 \times 8 - 8/8).
568 = 8 \times (8 \times 8 + 8) - 8.
569 = 8 \times (8 \times 8 + 8) - 8 + 8/8.
570 = 8 \times (8 \times 8 + 8) - 8 + (8 + 8)/8.
571 = 8 \times (8 + 8 \times 8) - 8 - 8 + 88/8.
572 = 8 \times (8 \times 8 + 8 - 8/(8 + 8)).
573 = 8 \times (8 \times 8 + 8) - (8 + 8 + 8)/8.
574 = 8 \times (8 \times 8 + 8) - (8 + 8)/8.
575 = 8 \times (8 \times 8 + 8) - 8/8.
576 = 8 \times (8 \times 8 + 8).
577 = 8 \times (8 \times 8 + 8) + 8/8.
578 = 8 \times (8 \times 8 + 8) + (8 + 8)/8.
579 = 8 \times (8 \times 8 + 8) + (8 + 8 + 8)/8.
580 = 8 \times (8 \times 8 + 8 + 8/(8 + 8)).
581 = 8 \times (8 \times 8 + 8) + 8 + 8 - 88/8.
582 = 8 \times (8 \times 8 + 8) + 8 - (8 + 8)/8.
583 = 8 \times (8 \times 8 + 8) + 8 - 8/8.
584 = 8 \times (8 \times 8 + 8) + 8.
585 = 8 \times (8 \times 8 + 8) + 8 + 8/8.
586 = 8 \times (8 \times 8 + 8) + 8 + (8 + 8)/8.
587 = 8 \times (8 \times 8 + 8) + 88/8.
588 = 8 \times (8 \times 8 + 8) + (88 + 8)/8.
589 = 8 \times 8 \times 8 - 88/8 + 88.
590 = 8 \times 8 \times 8 + 88 - 8 - (8 + 8)/8.
591 = 8 \times 8 \times 8 + 88 - 8 - 8/8.
592 = 8 \times 8 \times 8 + 88 - 8.
593 = 8 \times 88 - 888/8.
594 = 8 \times 88 - (888 - 8)/8.
595 = (8 + 88 - 88/8) \times (8 - 8/8).
596 = 8 \times (8 \times 8 - 8/(8 + 8)) + 88.
597 = 88 \times (8 - 8/8) - 8 - 88/8.
598 = 8 \times 8 \times 8 + 88 - (8+8)/8.
599 = 8 \times 8 \times 8 + 88 - 8/8.
600 = 8 \times 8 \times 8 + 88.
601 = 8 \times 8 \times 8 + 88 + 8/8.
602 = 8 \times 8 \times 8 + 88 + (8 + 8)/8.
603 = 88 \times 8 - 8888/88.
604 = 8 \times 8 \times 8 + 88 + 8 \times 8/(8 + 8).
605 = 88 \times 8 - 88 - 88/8.
606 = 8 \times 88 - 88 - 8 - (8 + 8)/8.
607 = 8 \times 88 - 88 - 8 - 8/8.
608 = 8 \times 88 - 88 - 8.
609 = (8 - 8/8) \times (88 - 8/8).
610 = 88 \times 8 - 88 - 8 + (8 + 8)/8.
611 = 8 \times 8 \times 8 + 88 + 88/8.
612 = 8 \times (88 - 8/(8 + 8)) - 88.
613 = 8 \times (88 - 8) - 8 - 8 - 88/8.
614 = 8 \times 88 - 88 - (8 + 8)/8.
615 = 8 \times 88 - 88 - 8/8.
```

 $680 = 8 \times (88 + 8) - 88$

```
616 = 8 \times 88 - 88.
                                                       681 = 8 \times (88 + 8) - 88 + 8/8.
                                                                                                              746 = 8 \times (88 + 8) - (88 + 88)/8.
617 = 8 \times 88 - 88 + 8/8.
                                                       682 = 8 \times 88 - (88 + 88)/8.
                                                                                                              747 = 888 - 88 - 8 \times 8 + 88/8.
618 = 8 \times 88 - 88 + (8 + 8)/8.
                                                       683 = 8 \times 88 - (88 + 88 - 8)/8.
                                                                                                              748 = 8 \times (88 + 8) - 8 - (88 + 8)/8.
619 = 8 \times 88 - 88 + (8 + 8 + 8)/8.
                                                       684 = 8 \times 88 - 8 - (88 + 8)/8.
                                                                                                              749 = 8 \times (88 + 8) - 8 - 88/8.
                                                       685 = 8 \times 88 - 8 - 88/8.
                                                                                                              750 = 8 \times (88 + 8) - 8 - (88 - 8)/8.
620 = 88 \times (8 - 8/8) + 8 \times 8/(8 + 8).
621 = 8 \times (88 - 8) - 8 - 88/8.
                                                       686 = 8 \times 88 - 8 - 8 - (8 + 8)/8.
                                                                                                              751 = 8 \times (88 + 8) - 8 - 8 - 8/8.
                                                       687 = 8 \times 88 - 8 - 8 - 8/8.
622 = 88 \times 8 - 88 + 8 - (8 + 8)/8.
                                                                                                              752 = 8 \times (88 + 8) - 8 - 8.
623 = 8 \times 8 \times 8 + 888/8.
                                                       688 = 8 \times 88 - 8 - 8.
                                                                                                              753 = 8 \times (88 + 8) - 8 - 8 + 8/8.
624 = 8 \times 88 - 88 + 8.
                                                       689 = 8 \times 88 - 8 - 8 + 8/8.
                                                                                                              754 = 8 \times (88 + 8) - 8 - 8 + (8 + 8)/8.
625 = 8 \times 88 - 88 + 8 + 8/8.
                                                       690 = 8 \times 88 - 8 - 8 + (8 + 8)/8.
                                                                                                              755 = 8 \times (88 + 8) - (88 + 8 + 8)/8.
                                                       691 = 8 \times 88 - (88 + 8 + 8)/8.
                                                                                                              756 = 8 \times (88 + 8) - (88 + 8)/8.
626 = 8 \times 88 - 88 + 8 + (8 + 8)/8.
627 = 8 \times 88 - 88 + 88/8.
                                                       692 = 8 \times 88 - (88 + 8)/8.
                                                                                                              757 = 8 \times (88 + 8) - 88/8.
628 = 8 \times (88 - 8) - (88 + 8)/8.
                                                       693 = 8 \times 88 - 88/8.
                                                                                                              758 = 8 \times (88 + 8) - (88 - 8)/8.
629 = 8 \times (88 - 8) - 88/8
                                                       694 = 8 \times 88 - (88 - 8)/8.
                                                                                                              759 = 8 \times (88 + 8) - 8 - 8/8.
                                                       695 = 8 \times 88 - 8 - 8/8.
630 = 8 \times (88 - 8) - (88 - 8)/8.
                                                                                                              760 = 8 \times (88 + 8) - 8.
631 = 8 \times (88 - 8) - 8 - 8/8.
                                                       696 = 8 \times 88 - 8.
                                                                                                              761 = 8 \times (88 + 8) - 8 + 8/8.
                                                                                                              762 = 8 \times (88 + 8) - 8 + (8 + 8)/8.
632 = 8 \times (88 - 8) - 8.
                                                       697 = 8 \times 88 - 8 + 8/8.
                                                       698 = 8 \times 88 - 8 + (8 + 8)/8.
633 = 8 \times (88 - 8) - 8 + 8/8.
                                                                                                              763 = 8 \times (88 + 8) - 8 + (8 + 8 + 8)/8.
634 = 8 \times (88 - 8) - 8 + (8 + 8)/8.
                                                       699 = 8 \times 88 - 8 + (8 + 8 + 8)/8.
                                                                                                              764 = 8 \times (88 + 8 - 8/(8 + 8)).
635 = 8 \times (88 - 8) - 8 - 8 + 88/8.
                                                       700 = 8 \times 88 - 8 \times 8/(8 + 8).
                                                                                                              765 = 8 \times (88 + 8) + 8 - 88/8.
636 = 8 \times (88 - 8 - 8/(8 + 8)).
                                                                                                              766 = (88 + 8) \times 8 - (8 + 8)/8.
                                                       701 = 8 \times 88 + 8 - 88/8.
637 = 8 \times (88 - 8) + 8 - 88/8.
                                                       702 = 8 \times 88 - (8 + 8)/8.
                                                                                                              767 = (88 + 8) \times 8 - 8/8.
638 = 8 \times (88 - 8) - (8 + 8)/8.
                                                       703 = 8 \times 88 - 8/8.
                                                                                                              768 = (88 + 8) \times 8.
639 = 8 \times (88 - 8) - 8/8.
                                                       704 = 8 \times 88.
                                                                                                              769 = (88 + 8) \times 8 + 8/8.
640 = 8 \times (88 - 8).
                                                       705 = 8 \times 88 + 8/8.
                                                                                                              770 = (88 + 8) \times 8 + (8 + 8)/8.
                                                       706 = 8 \times 88 + (8 + 8)/8.
                                                                                                              771 = 8 \times (88 + 8) - 8 + 88/8.
641 = 8 \times (88 - 8) + 8/8.
642 = 8 \times (88 - 8) + (8 + 8)/8.
                                                       707 = 8 \times 88 - 8 + 88/8.
                                                                                                              772 = 8 \times (88 + 8) + 8 \times 8/(8 + 8).
                                                       708 = 8 \times (88 + 8/(8 + 8)).
643 = 8 \times (88 - 8) - 8 + 88/8.
                                                                                                              773 = 8 \times (88 + 8) + 8 + 8 - 88/8.
                                                       709 = 8 \times 88 + 8 - (8 + 8 + 8)/8.
644 = 8 \times (88 - 8 + 8/(8 + 8)).
                                                                                                              774 = 8 \times (88 + 8) + 8 - (8 + 8)/8.
645 = 8 \times (88 - 8) + 8 - (8 + 8 + 8)/8.
                                                                                                              775 = 8 \times (88 + 8) + 8 - 8/8.
                                                       710 = 8 \times 88 + 8 - (8 + 8)/8.
646 = 8 \times (88 - 8) + 8 - (8 + 8)/8.
                                                       711 = 8 \times 88 + 8 - 8/8.
                                                                                                              776 = 8 \times (88 + 8) + 8.
647 = 8 \times (88 - 8) + 8 - 8/8.
                                                       712 = 8 \times 88 + 8.
                                                                                                              777 = 888 - 888/8.
648 = 8 \times (88 - 8) + 8.
                                                       713 = 8 \times 88 + 8 + 8/8.
                                                                                                              778 = 8 \times (88 + 8) + 8 + (8 + 8)/8.
649 = 8 \times (88 - 8) + 8 + 8/8.
                                                       714 = 8 \times 88 + 8 + (8 + 8)/8.
                                                                                                              779 = 8 \times (88 + 8) + 88/8.
650 = 8 \times (88 - 8) + (88 - 8)/8.
                                                       715 = 8 \times 88 + 88/8.
                                                                                                              780 = 8 \times (88 + 8 + 8/(8 + 8)) + 8.
651 = 8 \times (88 - 8) + 88/8.
                                                       716 = 8 \times 88 + (88 + 8)/8.
                                                                                                              781 = 8 \times 88 + 88 - 88/8.
652 = 8 \times (88 - 8) + (88 + 8)/8.
                                                       717 = 8 \times 88 + (88 + 8 + 8)/8.
                                                                                                              782 = 8 \times (88 + 8) + 8 + 8 - (8 + 8)/8.
653 = 8 \times (88 - 8) + (88 + 8 + 8)/8.
                                                       718 = 8 \times 88 + 8 + 8 - (8 + 8)/8.
                                                                                                              783 = 8 \times (88 + 8) + 8 + 8 - 8/8.
654 = 8 \times (88 - 8) + 8 + 8 - (8 + 8)/8.
                                                       719 = 8 \times 88 + 8 + 8 - 8/8.
                                                                                                              784 = 8 \times 88 + 88 - 8.
655 = 8 \times (88 - 8) + 8 + 8 - 8/8.
                                                                                                              785 = 888 + 8 - 888/8.
                                                       720 = 8 \times 88 + 8 + 8.
656 = 8 \times (88 - 8) + 8 + 8.
                                                       721 = 8 \times 88 + 8 + 8 + 8/8.
                                                                                                              786 = 8 \times (88 + 8) + 8 + (88 - 8)/8.
657 = 8 \times (88 - 8) + 8 + 8 + 8/8.
                                                       722 = 8 \times 88 + 8 + 8 + (8 + 8)/8.
                                                                                                              787 = 8 \times (88 + 8) + 8 + 88/8.
658 = 8 \times (88 - 8) + 8 + 8 + (8 + 8)/8.
                                                       723 = 88 \times 8 + 8 + 88/8.
                                                                                                              788 = 8 \times (88 - 8/(8 + 8)) + 88.
659 = 8 \times (88 - 8) + 8 + 88/8.
                                                       724 = 8 \times (88 + 8/(8 + 8)) + 8 + 8.
                                                                                                              789 = 888 - 88 - 88/8.
660 = 8 \times 88 \times (8 - 8/(8 + 8))/8.
                                                       725 = 8 \times 88 + (88 + 88 - 8)/8.
                                                                                                              790 = 8 \times 88 + 88 - (8 + 8)/8.
661 = 8 \times (8 \times 8 + 8) + 88 - (8 + 8)
                                                       726 = 8 \times 88 + (88 + 88)/8.
                                                                                                              791 = 8 \times 88 + 88 - 8/8.
8 + 8)/8.
                                                       727 = 8 \times (88 - 8) + 88 - 8/8.
                                                                                                              792 = 8 \times 88 + 88.
662 = 8 \times (8 \times 8 + 8) + 88 - (8 + 8)/8.
                                                       728 = 8 \times (88 - 8) + 88.
                                                                                                              793 = 8 \times 88 + 88 + 8/8.
                                                       729 = 8 \times (88 - 8) + 88 + 8/8.
663 = 8 \times (8 \times 8 + 8) + 88 - 8/8.
                                                                                                              794 = 8 \times 88 + 88 + (8 + 8)/8.
664 = 8 \times (8 \times 8 + 8) + 88.
                                                       730 = 8 \times (88 - 8) + 88 + (8 + 8)/8.
                                                                                                              795 = 8 \times 88 + 88 + (8 + 8 + 8)/8.
                                                       731 = 8 \times (88 - 8) + 88 - 8 + 88/8.
                                                                                                              796 = 888 - 88 - 8 \times 8/(8 + 8).
665 = 8 \times (8 \times 8 + 8) + 88 + 8/8.
666 = 888 \times (8 - (8 + 8)/8)/8.
                                                       732 = 8 \times (88 + 8/(8 + 8)) + 8 + 8 + 8.
                                                                                                              797 = 888 - 88 - (8 + 8 + 8)/8.
                                                                                                              798 = 888 - 88 - (8 + 8)/8.
667 = 8 \times (88 - 8) + 8 + 8 + 88/8.
                                                       733 = 888 - 88 - 8 \times 8 - (8 + 8 + 8)/8.
668 = 8 \times (88 + 8) - 88 - (88 + 8)/8.
                                                       734 = 888 - 88 - 8 \times 8 - (8 + 8)/8.
                                                                                                              799 = 888 - 88 - 8/8.
                                                                                                              800 = 888 - 88.
669 = 8 \times (88 + 8) - 88 - 88/8.
                                                       735 = 888 - 88 - 8 \times 8 - 8/8.
670 = (88+8) \times (8-8/8) - (8+8)/8.
                                                       736 = 888 - 88 - 8 \times 8.
                                                                                                              801 = 888 - 88 + 8/8.
                                                       736 = 888 - 88 - 8 \times 8.
                                                                                                              802 = 888 - 88 + (8 + 8)/8.
671 = (88 + 8) \times (8 - 8/8) - 8/8.
672 = (88 + 8) \times (8 - 8/8).
                                                       737 = 888 - 88 - 8 \times 8 + 8/8.
                                                                                                              803 = 88 \times (8 \times 8 + 8 + 8/8)/8.
                                                       738 = 888 - 88 - 8 \times 8 + (8 + 8)/8.
673 = (8 - 8/8) \times (88 + 8) + 8/8.
                                                                                                              804 = 88 + 8 + 8 \times (88 + 8/(8 + 8)).
                                                       739 = 8 \times (88 - 8) + 88 + 88/8.
674 = (8-8/8) \times (88+8) + (8+8)/8.
                                                                                                              805 = 8 \times 88 + 8888/88.
                                                       740 = 8 \times (88 - 8) + 88 + (88 + 8)/8.
                                                                                                              806 = 8 \times 88 - 8 + (888 - 8)/8.
675 = (8 \times 8 + 88/8) \times (8 + 8/8).
676 = 8 \times 88 - 8 - 8 - (88 + 8)/8.
                                                       741 = 8 \times (88 + 8) - 8 - 8 - 88/8.
                                                                                                              807 = 888 - 88 + 8 - 8/8.
                                                                                                              808 = 888 - 88 + 8.
677 = 8 \times 88 - 8 - 8 - 88/8.
                                                       742 = 8 \times (88 + 8) - 8 - 8 - (88 - 8)/8.
                                                                                                              809 = 888 - 88 + 8 + 8/8.
678 = 8 \times (88 + 8) - 88 - (8 + 8)/8.
                                                       743 = 8 \times (88 + 8) - 8 - 8 - 8 - 8/8.
679 = 8 \times (88 + 8) - 88 - 8/8.
                                                       744 = 8 \times (88 + 8) - 8 - 8 - 8.
                                                                                                              810 = 888 - 88 + (88 - 8)/8.
```

 $745 = 8 \times (88 + 8) - 8 - 8 - 8 + 8/8.$

811 = 888 - 88 + 88/8.

```
812 = 888 - 8 \times 8 - (88 + 8)/8.
                                                    874 = 888 - 8 - 8 + (8 + 8)/8.
                                                                                                        938 = 88 \times (88 - (8 + 8)/8)/8 - 8.
813 = 888 - 8 \times 8 - 88/8.
                                                    875 = 888 - (88 + 8 + 8)/8.
                                                                                                        939 = 888 + 8 \times 8 - (88 + 8 + 8)/8.
814 = 8 \times 88 + (888 - 8)/8.
                                                    876 = 888 - (88 + 8)/8.
                                                                                                        940 = 888 + 8 + 88 \times 8/(8 + 8).
                                                    877 = 888 - 88/8.
815 = 8 \times 88 + 888/8.
                                                                                                        941 = 888 + 8 \times 8 - 88/8.
816 = 888 - 8 \times 8 - 8.
                                                    878 = 888 - (88 - 8)/8.
                                                                                                        942 = 888 + 8 \times 8 - 8 - (8 + 8)/8.
                                                                                                        943 = 888 + 8 \times 8 - 8 - 8/8.
817 = 888 - 8 \times 8 - 8 + 8/8.
                                                    879 = 888 - 8 - 8/8.
                                                                                                        944 = 888 + 8 \times 8 - 8.
818 = 888 - 8 \times 8 - 8 + (8 + 8)/8.
                                                    880 = 888 - 8.
819 = 888 - 88 + 8 + 88/8.
                                                                                                        945 = 888 + 8 \times 8 - 8 + 8/8.
                                                    881 = 888 - 8 + 8/8.
820 = 888 - 8 \times (8 + 8/(8 + 8))
                                                    882 = 888 - 8 + (8 + 8)/8.
                                                                                                        946 = 888 + 8 \times 8 - 8 + (8 + 8)/8.
                                                    883 = 888 - 8 - 8 + 88/8.
821 = 888 - 8 \times 8 - (8 + 8 + 8)/8.
                                                                                                        947 = 888 + 8 \times 8 - 8 + (8 + 8 + 8)/8.
822 = 888 - 8 \times 8 - (8 + 8)/8.
                                                    884 = 888 - 8 \times 8/(8 + 8).
                                                                                                        948 = 888 + 8 \times (8 - 8/(8 + 8)).
823 = 888 - 8 \times 8 - 8/8.
                                                    885 = 888 + 8 - 88/8.
                                                                                                       949 = 8 \times (8 \times (8 + 8) - 8) - 88/8.
                                                    886 = 888 - (8 + 8)/8.
824 = 888 - 8 \times 8.
                                                                                                       950 = 888 + 8 \times 8 - (8 + 8)/8.
                                                    887 = 888 - 8/8.
                                                                                                       951 = 888 + 8 \times 8 - 8/8.
825 = 888 - 8 \times 8 + 8/8.
                                                    888 = 888.
826 = 888 - 8 \times 8 + (8 + 8)/8
                                                                                                       952 = 888 + 8 \times 8.
827 = 888 - 8 \times 8 + (8 + 8 + 8)/8.
                                                    890 = 888 + (8 + 8)/8.
                                                                                                       953 = 888 + 8 \times 8 + 8/8.
                                                    891 = 888 - 8 + 88/8.
828 = 888 - 8 \times (8 - 8/(8 + 8)).
                                                                                                       954 = 888 + 8 \times 8 + (8 + 8)/8.
829 = 8 \times (88 + 8 + 8) + 8 - 88/8.
                                                    892 = 888 + 8 \times 8/(8 + 8).
                                                                                                       955 = 888 + 8 \times 8 + (8 + 8 + 8)/8.
830 = 8 \times (88 + 8 + 8) - (8 + 8)/8.
                                                    893 = 888 + 8 + 8 - 88/8.
                                                                                                       956 = 888 + 8 \times (8 + 8/(8 + 8)).
831 = 8 \times (88 + 8 + 8) - 8/8.
                                                    894 = 888 + 8 - (8 + 8)/8.
                                                                                                       957 = 88 \times (88 - 8/8)/8.
                                                    895 = 888 + 8 - 8/8.
832 = 8 \times (88 + 8 + 8).
                                                                                                       958 = 8 \times (8 \times (8+8) - 8) - (8+8)/8.
833 = 8 \times (88 + 8 + 8) + 8/8.
                                                    896 = 888 + 8.
                                                                                                        959 = 8 \times (8 \times (8 + 8) - 8) - 8/8.
834 = 8 \times (88 + 8 + 8) + (8 + 8)/8.
                                                    897 = 888 + 8 + 8/8.
                                                                                                        960 = 8 \times (8 \times (8 + 8) - 8).
835 = 888 - 8 \times 8 + 88/8.
                                                    898 = 888 + 8 + (8 + 8)/8.
                                                                                                       961 = 8 \times (8 \times (8 + 8) - 8) + 8/8.
836 = 8 \times (88 + 8 + 8 + 8/(8 + 8)).
                                                    899 = 888 + 88/8.
                                                                                                       962 = 8 \times (8 \times (8+8) - 8) + (8+8)/8.
                                                    900 = 888 + (88 + 8)/8.
                                                                                                       963 = 888 + 8 \times 8 + 88/8.
837 = 8 \times (88 + 8 + 8) + 8 - (8 + 8)
                                                    901 = 888 + (88 + 8 + 8)/8.
                                                                                                        964 = 8 \times (8 \times (8+8) - 8 + 8/(8+8)).
8 + 8)/8.
838 = 8 \times (88 + 8 + 8) + 8 - (8 + 8)/8.
                                                    902 = 888 + 8 + 8 - (8 + 8)/8.
                                                                                                        965 = 888 + 88 - 88/8.
839 = 8 \times (88 + 8 + 8) + 8 - 8/8.
                                                    903 = 888 + 8 + 8 - 8/8.
                                                                                                        966 = (88 \times 88 - 8 - 8)/8.
840 = 8 \times (88 + 8 + 8) + 8.
                                                    904 = 888 + 8 + 8.
                                                                                                        967 = (88 \times 88 - 8)/8.
                                                    905 = 888 + 8 + 8 + 8/8.
841 = 8 \times (88 + 8 + 8) + 8 + 8/8.
                                                                                                        968 = 88 \times 88/8.
842 = 8 \times (88 + 8 + 8) + (88 - 8)/8.
                                                    906 = 888 + 8 + (88 - 8)/8.
                                                                                                        969 = (88 \times 88 + 8)/8.
843 = 8 \times (88 + 8 + 8) + 88/8.
                                                    907 = 888 + 8 + 88/8.
                                                                                                        970 = (88 \times 88 + 8 + 8)/8.
844 = 888 - 8 \times 88/(8 + 8).
                                                    908 = 888 + 8 + (88 + 8)/8.
                                                                                                        971 = (8 \times (8 + 8) - 8) \times 8 + 88/8.
845 = 8 \times (88 + 8 + 8) + (88 + 8 + 8)/8.
                                                    909 = 888 + 8 + (88 + 8 + 8)/8.
                                                                                                       972 = 888 + 88 - 8 \times 8/(8 + 8).
                                                                                                       973 = 888 + 88 - (8 + 8 + 8)/8.
846 = (8+8/8) \times (88+8-(8+8)/8).
                                                    910 = 888 + (88 + 88)/8.
                                                    911 = 888 + 8 + 8 + 8 - 8/8.
                                                                                                       974 = 888 + 88 - (8 + 8)/8.
847 = 8 \times (88 + 8 + 8) + 8 + 8 - 8/8.
                                                                                                       975 = 888 + 88 - 8/8.
848 = (8 + 8) \times (8 \times 8 - 88/8).
                                                    912 = 888 + 8 + 8 + 8.
                                                                                                       976 = 888 + 88.
849 = 8 \times (88 + 8) + 88 - 8 + 8/8.
                                                    913 = 888 + 8 + 8 + 8 + 8/8.
850 = 8 \times (88 + 8 + 8) + 8 + (88 - 8)/8.
                                                    914 = 888 + 8 + 8 + 8 + (8 + 8)/8.
                                                                                                       977 = 888 + 88 + 8/8.
851 = 8 \times (88 + 8 + 8) + 8 + 88/8.
                                                    915 = 888 + 8 + 8 + 88/8.
                                                                                                        978 = 888 + 88 + (8 + 8)/8.
852 = 8 \times (88 + 8 + 8) + 8 + (88 + 8)/8.
                                                    916 = 888 + 8 + 8 + (88 + 8)/8.
                                                                                                        979 = 88 \times (88 + 8/8)/8.
853 = 888 - 8 - 8 - 8 - 8 - 88/8.
                                                    917 = 888 + 8 + (88 + 88 - 8)/8.
                                                                                                        980 = 888 + 88 + 8 \times 8/(8 + 8).
854 = 8 \times (88 + 8) + 88 - (8 + 8)/8.
                                                    918 = 888 + 8 + (88 + 88)/8.
                                                                                                        981 = 888 + 88 + 8 - (8 + 8 + 8)/8.
855 = 8 \times (88 + 8) + 88 - 8/8.
                                                    919 = 888 + 8 + 8 + 8 + 8 - 8/8.
                                                                                                        982 = 888 + 88 + 8 - (8 + 8)/8.
                                                                                                        983 = 888 + 88 + 8 - 8/8.
856 = 8 \times (88 + 8) + 88
                                                    920 = 888 + 8 + 8 + 8 + 8.
857 = 8 \times (88 + 8) + 88 + 8/8
                                                    921 = 888 + 8 + 8 + 8 + 8 + 8 + 8/8.
                                                                                                        984 = 888 + 88 + 8.
                                                                                                        985 = 888 + 88 + 8 + 8/8.
858 = 8 \times (88 + 8) + 88 + (8 + 8)/8.
                                                    922 = 888 + 8 + 8 + 8 + 8 + (8 + 8)/8.
                                                    923 = 888 + 8 + 8 + 8 + 88/8.
                                                                                                        986 = 888 + 88 + 8 + (8 + 8)/8.
859 = 8 \times (88+8) + 88 + (8+8+8)/8.
                                                                                                        987 = 888 + 88 + 88/8.
860 = 88 + 8 \times (88 + 8 + 8/(8 + 8)).
                                                    924 = 888 + 8 + 8 + 8 + (88 + 8)/8.
                                                    925 = 888 + 888/(8 + 8 + 8).
861 = 888 - 8 - 8 - 88/8.
                                                                                                        988 = 888 + 88 + (88 + 8)/8.
                                                    926 = 8 \times 88 + 888 \times (8 + 8)/(8 \times 8).
862 = 888 - 8 - 8 - (88 - 8)/8.
                                                                                                        989 = 888 + 8888/88.
                                                    927 = (8 + 8/8) \times (888/8 - 8).
863 = 888 - 8 - 8 - 8 - 8/8.
                                                                                                        990 = 88 \times (88 + (8 + 8)/8)/8.
864 = 888 - 8 - 8 - 8.
                                                    928 = 888 + 8 + 8 + 8 + 8 + 8 + 8.
                                                                                                        991 = 888 + 888/8 - 8.
865 = 888 - 8 - 8 - 8 + 8/8.
                                                    929 = 888 + 8 + 8 + 8 + 8 + 8 + 8 + 8/8.
                                                                                                       992 = 888 + 88 + 8 + 8.
866 = 888 - 8 - 8 - 8 + (8 + 8)/8.
                                                    930 = (8 \times 8 - (8+8)/8) \times (8+8-8/8).
                                                                                                       993 = 888 + 88 + 8 + 8 + 8 + 8/8.
                                                    931 = 888 + 8 + 8 + 8 + 8 + 8 + 88/8.
867 = 8 \times (88 + 8) + 88 + 88/8.
                                                                                                       994 = 888 + 88 + 8 + 8 + (8 + 8)/8.
868 = 888 - 8 - (88 + 8)/8.
                                                    932 = 888 + 8 \times 88/(8 + 8).
                                                                                                        995 = 888 + 88 + 8 + 88/8.
869 = 888 - 8 - 88/8.
                                                    933 = 888 + 8 \times 8 - 8 - 88/8.
                                                                                                        996 = 888 + 88 + 8 + (88 + 8)/8.
870 = 888 - 8 - (88 - 8)/8.
                                                                                                        997 = 888 + (888 - 8 - 8)/8.
                                                    934 = 888 + 8 \times 8 - 8 - 8 - (8 + 8)/8.
                                                                                                        998 = 888 + (888 - 8)/8.
871 = 888 - 8 - 8 - 8/8.
                                                    935 = 888 + 8 \times 8 - 8 - 8 - 8/8.
872 = 888 - 8 - 8.
                                                    936 = 888 + 8 \times 8 - 8 - 8.
                                                                                                        999 = 888 + 888/8.
873 = 888 - 8 - 8 + 8/8.
                                                                                                        1000 = 888 + 88 + 8 + 8 + 8 + 8.
                                                    937 = 888 + 8 \times 8 - 8 - 8 + 8/8.
```

12. Representations Using Number 9

```
101 = 99 + (9 + 9)/9.
                                                    167 = 9 \times (9+9) + (99-9)/(9+9).
                                                                                                        233 = 9 \times (9 + 9 + 9) - 9 - 9/9.
102 = 999/9 - 9.
                                                    168 = 9 \times (9+9) + 9 - (9+9+9)/9.
                                                                                                        234 = 9 \times (9 + 9 + 9) - 9.
103 = (999 + 9)/9 - 9.
                                                    169 = 9 \times 9 + 99 - 99/9.
                                                                                                        235 = 9 \times (9 + 9 + 9) - 9 + 9/9.
104 = (999 + 9 + 9)/9 - 9.
                                                    170 = 9 \times (9+9) + 9 - 9/9.
                                                                                                        236 = 9 \times (9 + 9 + 9) - 9 + (9 + 9)/9.
105 = 99 + (99 + 9)/(9 + 9).
                                                    171 = 9 \times (9 + 9) + 9.
                                                                                                        237 = 9 \times (9+9+9) - 9 + (9+9+9)/9.
                                                                                                        238 = ((9+9)/9)^{(9-9/9)} - 9 - 9.
106 = 99 + 9 - (9 + 9)/9.
                                                    172 = 9 \times (9 + 9) + 9 + 9/9.
107 = 99 + 9 - 9/9.
                                                    173 = 9 \times (9 + 9) + 99/9.
                                                                                                        239 = 9 \times (9+9+9) - (9+9+9+9)/9.
108 = 99 + 9.
                                                    174 = 9 \times (9+9) + (99+9)/9.
                                                                                                        240 = 9 \times (9 + 9 + 9) - (9 + 9 + 9)/9.
                                                    175 = ((9+9)/9)^{(9-9/9)} - 9 \times 9.
109 = (9 + (9/9)) + 99.
                                                                                                        241 = 9 \times (9 + 9 + 9) - (9 + 9)/9.
110 = (999 - 9)/9.
                                                    176 = (9 + 9) \times (99 - 99/9)/9.
                                                                                                        242 = 9 \times (9 + 9 + 9) - 9/9.
                                                    177 = 99 + 9 \times 9 - (9 + 9 + 9)/9.
111 = 999/9.
                                                                                                        243 = 9 \times (9 + 9 + 9).
112 = (999 + 9)/9.
                                                    178 = 99 + 9 \times 9 - (9 + 9)/9.
                                                                                                        244 = 9 \times (9 + 9 + 9) + 9/9.
113 = ((9+9) + 999)/9.
                                                    179 = 99 + 9 \times 9 - 9/9.
                                                                                                        245 = 9 \times (9 + 9 + 9) + (9 + 9)/9.
114 = (999 + 9 + 9 + 9)/9.
                                                    180 = 99 + 9 \times 9.
                                                                                                        246 = 9 \times (9 \times 9 \times 9 + 9)/(9 + 9 + 9).
                                                                                                        247 = ((9+9)/9)^{(9-9/9)} - 9.
115 = 99 + 9 + 9 - (9 + 9)/9.
                                                    181 = 99 + 9 \times 9 + 9/9.
116 = 99 + 9 + 9 - 9/9.
                                                    182 = 9 \times (9 + 9) + 9 + 99/9.
                                                                                                        248 = (9 \times 9 + 9)/(9 + 9) + 9 \times (9 + 9)
117 = 99 + 9 + 9.
                                                    183 = 9 \times 9 - 9 + 999/9.
                                                                                                        9 + 9).
118 = 99 + 9 + 9 + 9/9.
                                                    184 = 9 \times (9 + 9) + (99 + 99)/9.
                                                                                                        249 = 9 + (9 + 9) \times (9 + 999/9)/9.
119 = 9 + (999 - 9)/9.
                                                    185 = 99 + 99 - (99 + 9 + 9)/9.
                                                                                                        250 = 9 \times (9 + 9) + 99 - 99/9.
120 = 9 + 999/9.
                                                    186 = 99 + 99 - (99 + 9)/9.
                                                                                                        251 = 9 \times (9 + 9 + 9) + 9 - 9/9.
121 = 9 + (999 + 9)/9.
                                                    187 = 99 + 99 - 99/9.
                                                                                                        252 = 9 \times (9 + 9 + 9) + 9.
122 = (999 + 99)/9.
                                                    188 = 99 + 99 - 9 - 9/9.
                                                                                                        253 = 9 \times (9 + 9 + 9) + 9 + 9/9.
123 = (999 + 99 + 9)/9.
                                                    189 = 99 + 99 - 9.
                                                                                                        254 = 9 \times (9 + 9 + 9) + 99/9.
                                                                                                        255 = ((9+9)/9)^{(9-9/9)} - 9/9.
124 = 99 + 9 + 9 + 9 - (9 + 9)/9.
                                                    190 = 99 + 99 - 9 + 9/9.
                                                                                                        256 = ((9+9)/9)^{(9-9/9)}.
                                                    191 = 99 + 9 \times 9 + 99/9.
125 = 99 + 9 + 9 + 9 - 9/9.
                                                                                                        257 = ((9+9)/9)^{(9-9/9)} + 9/9.
126 = 99 + 9 + 9 + 9.
                                                    192 = 9 \times 9 + 999/9.
127 = 99 + 9 + 9 + 9 + 9/9.
                                                    193 = 9 \times 9 + (999 + 9)/9.
                                                                                                        258 = 9 \times (9+9) + 99 - (9+9+9)/9.
128 = 99 + 9 + 9 + 99/9.
                                                    194 = 9 \times 9 + (999 + 9 + 9)/9.
                                                                                                        259 = 9 \times (9 + 9) + 99 - (9 + 9)/9.
                                                                                                        260 = 9 \times (9+9) + 99 - 9/9.
129 = 9 + 9 + 999/9.
                                                    195 = 99 + 99 - (9 + 9 + 9)/9.
                                                    196 = 99 + 99 - (9 + 9)/9.
130 = 9 + 9 + (999 + 9)/9.
                                                                                                        261 = 9 \times (9 + 9) + 99.
131 = 9 + (999 + 99)/9.
                                                    197 = 99 + 99 - 9/9.
                                                                                                        262 = 9 \times (9 + 9) + 99 + 9/9.
132 = 99 \times (99 + 9)/(9 \times 9).
                                                    198 = 99 + 99.
                                                                                                        263 = 9 \times (9 + 9 + 9) + 9 + 99/9.
133 = 9 \times (9 + 9) - 9 - 9 - 99/9.
                                                    199 = 99 + 99 + 9/9.
                                                                                                        264 = 9 \times (9 + 9) - 9 + 999/9.
                                                                                                        265 = ((9+9)/9)^{(9-9/9)} + 9.
134 = 99 + 9 + 9 + 9 + 9 - 9/9.
                                                    200 = 99 + 99 + (9 + 9)/9.
                                                                                                        266 = ((9+9)/9)^{(9-9/9)} + 9 + 9/9.
135 = 99 + 9 + 9 + 9 + 9.
                                                    201 = 99 - 9 + 999/9.
                                                                                                        267 = ((9+9)/9)^{(9-9/9)} + 99/9.
                                                    202 = 99 - 9 + (999 + 9)/9.
136 = (9 - 9/9) \times (9 + 9 - 9/9).
                                                    203 = 9 \times 9 + (999 + 99)/9.
                                                                                                        268 = 9 \times 9 + 99 + 99 - 99/9.
137 = 99 + 9 + 9 + 9 + 99/9.
                                                                                                        269 = 999 - 9 \times 9 \times 9 - 9/9.
138 = 9 + 9 + 9 + 999/9.
                                                    204 = (9+9) \times (999/9 - 9)/9.
                                                                                                        270 = 999 - 9 \times 9 \times 9.
139 = 9 + 9 + 9 + (999 + 9)/9.
                                                    205 = 99 + 99 + 9 - (9 + 9)/9.
140 = 9 + 9 + (999 + 99)/9.
                                                    206 = 99 + 99 + 9 - 9/9.
                                                                                                        271 = 999 - 9 \times 9 \times 9 + 9/9.
141 = 9 \times (9 + 9) - 9 - (99 + 9)/9.
                                                    207 = 99 + 99 + 9.
                                                                                                        272 = 9 \times (9 + 9) + 99 + 99/9.
142 = 9 \times (9 + 9) - 9 - 99/9.
                                                    208 = 99 + 99 + 9 + 9/9.
                                                                                                        273 = 9 \times (9 + 9) + 999/9.
143 = 9 \times (9 + 9) - 9 - 9 - 9/9.
                                                    209 = 99 + (999 - 9)/9.
                                                                                                        274 = 9 \times (9 + 9) + (999 + 9)/9.
144 = (9+9) \times (9-9/9).
                                                    210 = 99 + 999/9.
                                                                                                        275 = 99 \times (9 + 9 + 9 - (9 + 9)/9)/9.
145 = 9 \times (9+9) - 9 - 9 + 9/9.
                                                    211 = 99 + (999 + 9)/9.
                                                                                                        276 = (9+9+9) \times (9 \times 9 + 99/9)/9.
146 = 9 \times (9+9) - 9 - 9 + (9+9)/9.
                                                    212 = 99 + (999 + 9 + 9)/9.
                                                                                                        277 = 99 + 99 + 9 \times 9 - (9 + 9)/9.
147 = 9 + 9 + 9 + 9 + 999/9.
                                                    213 = (9+9) \times (9+9) - 999/9.
                                                                                                        278 = 99 + 99 + 9 \times 9 - 9/9.
                                                                                                        279 = 99 + 99 + 9 \times 9.
148 = 99 + (99 \times 9 - 9)/(9 + 9).
                                                    214 = 99 + (9 + 9) \times (9 - 9/9)/9.
                                                                                                        280 = 99 + 99 + 9 \times 9 + 9/9.
149 = 9 \times (9+9) - (99+9+9)/9.
                                                    215 = 99 + 99 + 9 + 9 - 9/9.
                                                    216 = 99 + 99 + 9 + 9.
                                                                                                        281 = 999 - 9 \times 9 \times 9 + 99/9.
150 = 9 \times (9+9) - (99+9)/9.
                                                    217 = 9 \times 9 \times 9 - ((9+9)/9)^9.
151 = 9 \times (9+9) - 99/9.
                                                                                                        282 = 9 \times (9 + 9) + 9 + 999/9.
152 = 9 \times (9 + 9) - 9 - 9/9.
                                                    218 = 99 + 9 + (999 - 9)/9.
                                                                                                        283 = 9 \times (9 + 9) + 9 + (999 + 9)/9.
153 = 9 \times (9 + 9) - 9.
                                                    219 = 99 + 9 + 999/9.
                                                                                                        284 = 9 \times (9 + 9) + (999 + 99)/9.
154 = 9 \times (9 + 9) - 9 + 9/9.
                                                    220 = 99 \times (9 + 99/9)/9.
                                                                                                        285 = 99 + 99 + 99 - (99 + 9)/9.
155 = 9 \times (9+9) - 9 + (9+9)/9.
                                                    221 = 99 + (999 + 99)/9.
                                                                                                        286 = 99/9 \times (9 + 9 + 9 - 9/9).
156 = 9 \times (9+9) - 9 + (9+9+9)/9.
                                                    222 = 999 \times (9 + 9)/(9 \times 9).
                                                                                                        287 = 99 + 99 + 99 - 9 - 9/9.
157 = ((9+9)/9)^{(9-9/9)} - 99.
                                                    223 = 9 \times (9 + 9 + 9) - 9 - 99/9.
                                                                                                        288 = 99 + 99 + 99 - 9.
158 = 9 \times (9+9) - (9 \times 9 - 9)/(9+9).
                                                    224 = 9 \times (9 + 9 + 9) - 9 - 9 - 9/9.
                                                                                                        289 = (9 + 9 - 9/9)((9 + 9)/9).
159 = 9 \times (9+9) - (9+9+9)/9.
                                                    225 = 9 \times (9 + 9 + 9) - 9 - 9.
                                                                                                        290 = (9 + 9/9) \times (9 + 9 + 99/9).
160 = 9 \times (9 + 9) - (9 + 9)/9.
                                                    226 = (9+9) \times (9+9) - 99 + 9/9.
                                                                                                        291 = 99 + 9 \times 9 + 999/9.
                                                    227 = 99 + 9 + 9 + (999 - 9)/9.
161 = 9 \times (9+9) - 9/9.
                                                                                                        292 = 99 + 9 \times 9 + (999 + 9)/9.
162 = 9 \times (9 + 9).
                                                    228 = 99 + 9 + 9 + 999/9.
                                                                                                        293 = (9+9) \times (9+9) - 9 - (99+99)/9.
163 = 9 \times (9 + 9) + 9/9.
                                                    229 = 9 + 99 \times (9 + 99/9)/9.
                                                                                                        294 = (9 + 9 + 9) \times (99 - 9/9)/9.
                                                    230 = 99 + 9 + (999 + 99)/9.
                                                                                                        295 = (9+9) \times (9+9) - 9 - 9 - 99/9.
164 = 9 \times (9 + 9) + (9 + 9)/9.
165 = 9 \times (9+9) + (9+9+9)/9.
                                                    231 = 9 \times (9 + 9 + 9) - (99 + 9)/9.
                                                                                                        296 = 99 + 99 + 99 - 9/9.
166 = (9+9)/9 \times (9 \times 9 + (9+9)/9).
                                                    232 = 9 \times (9 + 9 + 9) - 99/9.
                                                                                                        297 = 99 + 99 + 99.
```

 $426 = (9+9) \times (9+9) - 9 + 999/9.$

```
298 = 99 + 99 + 99 + 9/9.
299 = (99 \times (9 + 9 + 9) + 9 + 9)/9.
300 = (9 + 9 + 9) \times (99 + 9/9)/9.
301 = (9 + 99/9)((9 + 9)/9) - 99.
302 = (9+9) \times (9 \times (9+9) - 99/9)/9.
303 = (9+9) \times (9+9) - 9 - (99+9)/9.
304 = (9+9) \times (9+9) - 9 - 99/9.
305 = (9+9) \times (9+9) - 9 - 9 - 9/9.
306 = (9+9) \times (9+9-9/9).
307 = (9+9) \times (9+9) - 9 - 9 + 9/9.
308 = 99 \times (9 + 9 + 9 + 9/9)/9.
309 = 99 + 99 + 999/9.
310 = 99 + 99 + (999 + 9)/9.
311 = (9+9) \times (9+9) - (99+9+9)/9.
312 = (9+9) \times (9+9) - (99+9)/9.
313 = (9+9) \times (9+9) - 99/9.
314 = (9+9) \times (9+9) - 9 - 9/9.
315 = (9+9) \times (9+9) - 9.
316 = (9+9) \times (9+9) - 9 + 9/9.
317 = (9+9) \times (9+9) - 9 + (9+9)/9.
318 = 99 + 99 + 9 + 999/9.
319 = 99 \times (9 + 9 + 99/9)/9.
320 = (9+9+9+9) \times (9 \times 9 - 9/9)/9.
321 = (9+9) \times (9+9) - (9+9+9)/9.
322 = (9+9) \times (9+9) - (9+9)/9.
323 = (9+9) \times (9+9) - 9/9.
324 = (9+9) \times (9+9).
325 = (9+9) \times (9+9) + 9/9.
326 = (9+9) \times (9+9) + (9+9)/9.
327 = (9+9) \times (9+9) + (9+9+9)/9.
328 = (9 \times 9 \times 9 + 9) \times (9 - 9/9)/(9 + 9).
329 = (9+9) \times (9+9) + (99-9)/(9+
330 = 9 \times 99 \times (9 + 9/9)/(9 + 9 + 9).
331 = (9+9) \times (9+9) + 9 - (9+9)/9.
332 = (9+9) \times (9+9) + 9 - 9/9.
333 = (9+9) \times (9+9) + 9.
334 = (9+9) \times (9+9) + 9 + 9/9.
335 = (9+9) \times (9+9) + 99/9.
336 = (9+9) \times (9+9) + (99+9)/9.
337 = 9 \times 9 + ((9+9)/9)^{(9-9/9)}.
338 = 9 \times 9 + ((9+9)/9)^{(9-9/9)} + 9/9.
339 = 9 \times (9 + 9 + 9) + 99 - (9 +
9+9)/9.
340 = (9 + 9 - 9/9) \times (9 + 99/9).
341 = 9 \times (9 + 9 + 9) + 99 - 9/9.
342 = 9 \times (9 + 9 + 9) + 99.
343 = 9 \times (9 + 9 + 9) + 99 + 9/9.
344 = (9+9) \times (9+9) + 9 + 99/9.
345 = 9 \times (9 + 9 + 9) - 9 + 999/9.
346 = ((9+9)/9) \times ((9+9) \times 9 + 99/9).
347 = 9 \times (9 \times 99 + 9/9)/(9 + 9) - 99.
348 = (9 + 9 + 99/9) \times (99 + 9)/9.
349 = ((9+9)/9)^9 - 9 \times (9+9) - 9/9.
350 = ((9+9)/9)^9 - 9 \times (9+9).
351 = 9 \times (9 + 9 + 9) + 99 + 9.
352 = (9 + 9 + 9/9)(9 + 9)/9 - 9.
353 = (9+9) \times (9+9) + 9 + 9 + 99/9.
354 = 9 \times (9 + 9 + 9) + 999/9.
355 = 99 + ((9+9)/9)^{(9-9/9)}.
356 = 9 \times (9 \times 9 \times 9 + 9/9)/(9 + 9) - 9.
357 = (9 + (9 + 99)/9) \times (9 + 9 - 9/9).
358 = (9+9) \times (9+99/9) - (9+9)/9.
359 = (9+9) \times (9+99/9) - 9/9.
360 = (9+9) \times (9+99/9).
361 = (9 + 9 + 9/9)((9 + 9)/9).
```

```
362 = (9 + 9 + 9/9)(9 + 9)(9) + 9/9.
363 = 9 \times (9 + 9 + 9) + 9 + 999/9.
364 = 9 \times (9 \times 9 \times 9 - 9/9)/(9 + 9).
365 = 9 \times (9 \times 9 \times 9 + 9/9)/(9 + 9).
366 = 9 \times (999 + 99)/(9 + 9 + 9).
367 = 9 \times 9 + 99 \times (9 + 9 + 9 - 9/9)/9.
368 = 9 + 9 + ((9+9)/9)^9 - 9 \times (9+9).
369 = (9+9) \times (9+99/9) + 9.
370 = 9 \times 99 - 9 - ((9+9)/9)^9
371 = (9+9) \times (99/9+9) + 99/9.
372 = 9 \times (9 + 9) + 99 + 999/9.
373 = 9999/9 - 9 \times 9 \times 9 - 9.
374 = (99 + 99) \times (9 + 9 - 9/9)/9.
375 = (9+9) \times (9+9+9) - 999/9.
376 = (9+9+9+9+99/9) \times (9-9/9).
377 = (9+9) \times (9+(9+99)/9) - 9/9.
378 = ((99 + 9)/9 + 9) \times (9 + 9).
379 = 9 \times 99 - ((9+9)/9)^9.
380 = (99/9 + 9) \times (9 + 9 + 9/9).
381 = 9 \times (9 + 9) + 9 + 99 + 999/9.
382 = 9999/9 - 9 \times 9 \times 9.
383 = (9999 + 9)/9 - 9 \times 9 \times 9.
384 = (9 \times 9 + 999/9) \times (9 + 9)/9.
385 = 99 \times (9 + 9 + 9 + 9 - 9/9)/9.
386 = (9+9) \times (9+9+9) - 99 - 9/9.
387 = (9+9) \times (9+9+9) - 99.
388 = 9 \times 99 - ((9+9)/9)^9 + 9.
389 = (9 + 9 + 9/9) \times (9 + 99/9) + 9.
390 = (999/9 + 9 - 9 \times 9) \times (9 + 9/9).
391 = (9 + 99/9)(9 + 9)/9 - 9.
392 = (9 \times 9 - 9) \times (99 - 9/9)/(9 + 9).
393 = (9+9) \times (9+9) + 9 \times 9 -
(99 + 9)/9.
394 = (9+9) \times (9+9) + 9 \times 9 - 99/9.
395 = ((9+9)/9)^9 - 9 - 99 - 9.
396 = (9+9) \times (99+99)/9.
397 = ((9+9) \times (99+99) + 9)/9.
398 = (9+9) \times (99+99+9/9)/9.
399 = (9 + 99/9)(9 + 9)/9 - 9/9.
400 = (9 + 99/9)(9 + 9)/9.
401 = ((9+9)/9)^9 - 999/9.
402 = ((9+9)/9)^9 - 99 - 99/9.
403 = ((9+9)/9)^9 - 99 - 9 - 9/9.
404 = ((9+9)/9)^9 - 99 - 9.
405 = (9+9) \times (9+9) + 9 \times 9.
406 = (9+9) \times (9+9) + 9 \times 9 + 9/9.
407 = 99 \times (9 + 9 + 9 + 9 + 9/9)/9.
408 = 99 + 99 + 99 + 999/9.
409 = (9 + 99/9)(9 + 9)/9 + 9.
410 = ((9+9)/9)^9 + 9 - 999/9.
411 = ((9+9)/9)^9 - 99 - (9+9)/9.
412 = ((9+9)/9)^9 - 99 - 9/9.
413 = ((9+9)/9)^9 - 99.
414 = (9+9) \times (9+9) + 99 - 9.
415 = (9+9) \times (9+9) + 99 - 9 + 9/9.
416 = (9+9) \times (9+9) + 9 \times 9 + 99/9.
417 = (9 + 9) \times (9 + 9) + 9 \times 9 +
(99+9)/9.
418 = (9 + 99/9)(9 + 9)/9 + 9 + 9.
419 = ((9+9)/9)^9 - 9 \times 9 - (99+9)/9.
420 = (9+9) \times (99+999/9)/9.
421 = ((9+9)/9)^9 - 99 + 9 - 9/9.
422 = ((9+9)/9)^9 - 99 + 9.
423 = (9+9) \times (9+9) + 99.
424 = (9+9) \times (9+9) + 99 + 9/9.
```

 $425 = (9+9) \times (9+9) + 99 + (9+9)/9.$

```
427 = (9+9) \times (9+9) - 9 + (999+9)/9.
428 = ((9+9)/9)^9 - 9 \times 9 - (9+9+
9)/9.
429 = ((9+9)/9)^9 - 9 \times 9 - (9+9)/9.
430 = ((9+9)/9)^9 - 9 \times 9 - 9/9.
431 = ((9+9)/9)^9 - 9 \times 9.
432 = (9+9) \times (9+9) + 99 + 9.
433 = (9+9) \times (9+9) + 99 + 9 + 9/9.
434 = (9+9) \times (9+9) + (999-9)/9.
435 = (9+9) \times (9+9) + 999/9.
436 = (9+9) \times (9+9) + (999+9)/9.
437 = 9 \times (9 \times 99 + 9/9)/(9 + 9) - 9.
438 = 9 \times (9 \times 9 - 9) - 99 - 999/9.
439 = ((9+9)/9)^9 + 9 - 9 \times 9 - 9/9.
440 = ((9+9)/9)^9 + 9 - 9 \times 9.
441 = 9 \times (99 \times 9 - 9)/(9 + 9).
442 = (9+9+9-9/9) \times (9+9-9/9).
443 = (9+9) \times (9+9) + 99 + 9 + 99/9.
444 = 999 \times (9 + 9 + 9 + 9)/(9 \times 9).
445 = 9 \times (9 \times 99 - 9/9)/(9 + 9).
446 = 9 \times (9 \times 99 + 9/9)/(9 + 9).
447 = 9 \times (9 \times 99 + 9/9)/(9 + 9) + 9/9.
448 = (9 - 9/9) \times (9 + 999)/(9 + 9).
449 = ((9+9)/9)^9 + 9 + 9 - 9 \times 9.
450 = 9 \times (9 \times 99 + 9)/(9 + 9).
451 = 9 \times (99 \times 9 + 99/9)/(9 + 9).
452 = 9 \times (9 \times 99 + 9)/(9 + 9) + (9 + 9)
453 = 9 \times (9 + 9 + 9) + 99 + 999/9.
454 = 9 \times (99 \times 9 - 9/9)/(9 + 9) + 9.
455 = 9 \times (99 \times 9 + 9/9)/(9 + 9) + 9.
456 = (9+9+9+99/9) \times (9+99)/9.
457 = (9+9+9) \times (9+9) - 9 - 9 -
99/9.
458 = ((9+9)/9)^9 + 9 + 9 + 9 - 9 \times 9.
459 = (9 + 9 + 9) \times (9 + 9 - 9/9).
460 = 9 \times (99 + 9) - ((9 + 9)/9)^{9}.
461 = (9 \times 9 - 99/9) \times (9 - 9/9) - 99.
462 = 9 \times (9 - 9 \times 9) + (9999 - 9)/9.
463 = 9 \times (9 - 9 \times 9) + 9999/9.
464 = (9+9+99/9) \times (9+9-(9+
9)/9).
465 = (9+9) \times (9+9+9) - 9 -
(99 + 9)/9.
466 = (9+9) \times (9+9+9) - 9 - 99/9.
467 = (9+9) \times (9+9+9-9/9) - 9/9.
468 = (9+9) \times (9+9+9-9/9).
469 = (9+9) \times (9+9+9) - 9 - 9 + 9/9.
470 = (9+9) \times (9+9+9) - 9 - 9 +
(9+9)/9.
471 = (9+9) \times (9+9+9) - 9 - 9 +
(9+9+9)/9.
472 = (9+99/9)((9+9)/9)+9\times9-9.
473 = 9 \times 9 \times 9 - ((9+9)/9)^{(9-9/9)}.
474 = (9+9) \times (9+9+9) - (9+99)/9.
475 = (9+9) \times (9+9+9) - 99/9.
476 = (9+9) \times (9+9+9) - 9 - 9/9.
477 = (9+9) \times (9+9+9) - 9.
478 = (9+9) \times (9+9+9) - 9+9/9.
479 = (9 + 9) \times (9 + 9 + 9) - 9 +
(9+9)/9.
480 = (9 + 9) \times (9 + 9 + 9) - 9 +
(9+9+9)/9.
481 = 9 \times 9 + (9 + 99/9)(9 + 9)/9.
```

```
482 = (9+9) \times (9+9+9) - (9 \times 9)
9-9)/(9+9).
483 = (9+9+9) \times ((9+9) \times 9-9/9)/9.
484 = ((99 + 99)/9)((9 + 9)/9).
485 = (9+9) \times (9+9+9) - 9/9.
486 = (9+9) \times (9+9+9).
487 = (9+9) \times (9+9+9) + 9/9.
488 = (9+9) \times (9+9+9) + (9+9)/9.
489 = (9+9+9) \times (9 \times (9+9) + 9/9)/9.
490 = (99 - 9/9) \times (99 - 9)/(9 + 9).
491 = ((9+9)/9)^9 - 9 - (9+99)/9.
492 = ((9+9)/9)^9 - 9 - 99/9.
493 = ((9+9)/9)^9 - 9 - 9 - 9/9.
494 = ((9+9)/9)^9 - 9 - 9.
495 = (9+9) \times (9+9+9) + 9.
496 = (9+9) \times (9+9+9) + 9+9/9.
497 = (9+9) \times (9+9+9) + 99/9.
498 = (9+9) \times (9+9+9) + (99+9)/9.
499 = (99/9 + 9)(9 + 9)/9 + 99.
500 = ((9+9)/9)^9 - (9+99)/9.
501 = ((9+9)/9)^9 - 99/9.
502 = ((9+9)/9)^9 - 9 - 9/9.
503 = ((9+9)/9)^9 - 9.
504 = ((9+9)/9)^9 - 9 + 9/9.
505 = ((9+9)/9)^9 - 9 + (9+9)/9.
506 = ((9+9)/9)^9 - 9 + (9+9+9)/9.
507 = ((9+9)/9)^9 - (9 \times 9 + 9)/(9 + 9).
508 = ((9+9)/9)^9 - (9 \times 9 - 9)/(9 + 9).
509 = ((9+9)/9)^9 - (9+9+9)/9.
510 = ((9+9)/9)^9 - (9+9)/9.
511 = ((9+9)/9)^9 - 9/9.
512 = ((9+9)/9)^9.
513 = ((9+9)/9)^9 + 9/9.
514 = ((9+9)/9)^9 + (9+9)/9.
515 = ((9+9)/9)^9 + (9+9+9)/9.
516 = ((9+9)/9)^9 + (9 \times 9 - 9)/(9 + 9).
517 = ((9+9)/9)^9 + (9 \times 9 + 9)/(9 + 9).
518 = ((9+9)/9)^9 + 9 - (9+9+9)/9.
519 = ((9+9)/9)^9 + 9 - (9+9)/9.
520 = ((9+9)/9)^9 + 9 - 9/9.
521 = ((9+9)/9)^9 + 9.
522 = ((9+9)/9)^9 + 9 + 9/9.
523 = ((9+9)/9)^9 + 99/9.
524 = ((9+9)/9)^9 + (99+9)/9.
525 = ((9+9)/9)^9 + (99+9+9)/9.
526 = ((9+9)/9)^9 + (99+9+9+9)/9.
528 = ((9+9)/9)^9 + 9 + 9 - (9+9+
9)/9.
528 = ((9+9)/9)^9 + 9 + 9 - (9+9)/9.
529 = ((9+9)/9)^9 + 9 + 9 - 9/9.
530 = ((9+9)/9)^9 + 9 + 9.
531 = 9 \times 9 \times 9 - 99 - 99.
532 = ((9+9)/9)^9 + 9 + 99/9.
533 = ((9+9)/9)^9 + 9 + (99+9)/9.
534 = ((9+9)/9)^9 + 9 + (99+9+9)/9.
535 = 9 \times (9 \times 9 - 9) - (999 + 9 + 9)/9.
536 = 9 \times (9 \times 9 - 9) - (999 + 9)/9.
537 = 9 \times (9 \times 9 - 9) - 999/9.
538 = ((9+9)/9)^9 + 9 + 9 + 9 - 9/9.
539 = ((9+9)/9)^9 + 9 + 9 + 9.
540 = (9 + 9 + 9) \times (9 + 99/9).
541 = 9 \times (9 \times 9 - 9) - 9 - 99 + 9/9.
542 = 9 \times (9 \times 9 - 9) - 9 - 99 + (9 + 9)
543 = (9+9+9) \times (99+9/9+9 \times 9)/9.
```

```
554 = 9 \times (9 \times 9 - 9 - 9) - (99 + 9)
9 + 9)/9.
545 = 99 + 9 \times (9 \times 99 + 9/9)/(9 + 9).
546 = 9 \times (9 \times 9 - 9) - (999/9 - 9).
547 = 9 \times (9 \times 9 - 9 - 9) - 9 - 99/9.
548 = 9 \times (9 \times 9 - 9) - 99 - 9/9.
549 = 9 \times (9 \times 9 - 9) - 99.
550 = 9 \times (9 \times 9 - 9) - 99 + 9/9.
551 = 9 \times (9 \times 9 - 9) - 99 + (9 + 9)/9.
552 = (9 \times 9 - (99 + 9)/9) \times (9 - 9/9).
553 = (9 \times 9 - (9 + 9)/9) \times (9 - (9 +
9)/9).
554 = 9 \times (9 \times 9 - 9 - 9) - (99 + 9)
9+9)/9.
555 = 9 \times (9 \times 9 - 9 - 9) - (99 + 9)/9.
556 = 9 \times (9 \times 9 - 9 - 9) - 99/9.
557 = 9 \times (9 \times 9 - 9 - 9) - 9 - 9/9.
558 = 9 \times (9 \times 9 - 9 - 9) - 9.
559 = 9 \times (9 \times 9 - 9 - 9) - 9 + 9/9.
560 = (9 \times 9 - 99/9) \times (9 - 9/9).
561 = 9 \times (9 \times 9 - 9 - 9) - 9 + (9 + 9)
9 + 9)/9.
562 = 9 \times (9 + 9) + (9 + 99/9)(9 +
9)/9).
563 = 9 \times (9 \times 9 - 9 - 9) - (9 + 9 + 9)
9+9)/9.
564 = 9 \times (9 \times 9 - 9 - 9) - (9 + 9 + 9)/9.
565 = 9 \times (9 \times 9 - 9 - 9) - (9 + 9)/9.
566 = 9 \times (9 \times 9 - 9 - 9) - 9/9.
567 = 9 \times (9 \times 9 - 9 - 9).
568 = 9 \times (9 \times 9 - 9 - 9) + 9/9.
569 = 9 \times (9 \times 9 - 9 - 9) + (9 + 9)/9.
570 = 9 \times (9 \times 9 - 9 - 9) + (9 + 9 + 9)/9.
571 = 9 \times (9 \times 9 - 9 - 9) + (9 + 9 + 9 + 9)
9+9)/9.
572 = (9+9+9-9/9) \times (99+99)/9.
573 = 9 \times 9 + ((9+9)/9)^9 - 9 - 99/9.
574 = (9 - (9+9)/9) \times (9 \times 9 + 9/9).
575 = (9 \times 9 - 9) \times (9 - 9/9) - 9/9.
576 = (9 \times 9 - 9) \times (9 - 9/9).
577 = (9 \times 9 - 9) \times (9 - 9/9) + 9/9.
578 = 9 \times (9 \times 9 - 9 - 9) + 99/9.
579 = 9 \times (9 \times 9 - 9 - 9) + (99 + 9)/9.
580 = (9 + 9 + 99/9) \times (9 + 99/9).
581 = (9 \times 9 + (9 + 9)/9) \times (9 - (9 +
9)/9).
582 = 9 \times 9 + ((9+9)/9)^9 - 99/9.
583 = 9 \times 9 + ((9+9)/9)^9 - 9 - 9/9.
584 = 9 \times 9 + ((9+9)/9)^9 - 9.
585 = 9 \times (9 \times 9 - 9 - 9) + 9 + 9.
586 = 9 \times (9 \times 9 - 9 - 9) + 9 + 9 + 9/9.
587 = 9 \times (9 \times 9 - 9 - 9) + 9 + 99/9.
588 = (99 - 9/9) \times (9 - (9 + 9 + 9)/9).
589 = 9 \times 9 + 9 + (9 \times 999 - 9)/(9 + 9).
590 = 9 \times 9 + ((9+9)/9)^9 - (9+9+
591 = 9 \times 9 + ((9+9)/9)^9 - (9+9)/9.
592 = 9 \times 9 + ((9+9)/9)^9 - 9/9.
593 = 9 \times 9 + ((9+9)/9)^9
594 = 99 \times (99 + 9)/(9 + 9).
595 = 99 \times (99 + 9)/(9 + 9) + 9/9.
596 = 99 \times (99+9)/(9+9) + (9+9)/9.
597 = (9+9) \times (9+9+9) + 999/9.
598 = 9 \times 9 \times 9 - 9 - (99 + 999)/9.
599 = 9999/9 - ((9+9)/9)^9.
600 = (99 + 9) \times (99 + 9/9)/(9 + 9).
```

```
602 = ((9+9)/9)^9 + 99 - 9.
603 = ((9+9)/9)^9 + 99 - 9 + 9/9.
604 = ((9+9)/9)^9 + 99 - 9 + (9+9)/9.
605 = 99 \times (999 - 9)/(9 \times (9 + 9)).
606 = 9 \times 9 \times 9 - (999 + 99 + 9)/9.
607 = 9 \times 9 \times 9 - (999 + 99)/9.
608 = 9 \times 9 \times 9 - 99 \times 99/(9 \times 9).
609 = 9 \times 9 \times 9 - 9 - 999/9.
610 = ((9+9)/9)^9 + 99 - 9/9.
611 = ((9+9)/9)^9 + 99.
612 = 9 \times 9 \times 9 - 9 - 9 - 99.
613 = 9 \times 9 \times 9 - 9 - 9 - 99 + 9/9.
614 = ((9+9)/9)^9 - 9 + 999/9.
615 = 9 \times 9 \times 9 - (999 + 9 + 9 + 9)/9.
616 = 9 \times 9 \times 9 - (999 + 9 + 9)/9.
617 = 9 \times 9 \times 9 - (999 + 9)/9.
618 = 9 \times 9 \times 9 - 999/9.
619 = 9 \times 9 \times 9 - 99 - 99/9.
620 = 9 \times 9 \times 9 - 99 - 9 - 9/9.
621 = 9 \times 9 \times 9 - 99 - 9.
622 = 9 \times 9 \times 9 - 9 - 99 + 9/9.
623 = ((9+9)/9)^9 + 999/9.
624 = (9-9/9) \times (9 \times 9 - (9+9+9)/9).
625 = (9+9+9-(9+9)/9)((9+9)/9).
626 = 9 + 9 \times 9 \times 9 - (999 + 9)/9.
627 = 9 \times 9 \times 9 + 9 - 999/9.
628 = 9 \times 9 \times 9 - 99 - (9 + 9)/9.
629 = 9 \times 9 \times 9 - 99 - 9/9.
630 = 9 \times 9 \times 9 - 99.
631 = 9 \times 9 \times 9 - 99 + 9/9.
632 = 9 \times 9 \times 9 - 99 + (9 + 9)/9.
633 = 9 \times 9 \times 9 - 99 + (9 + 9 + 9)/9.
634 = 9 \times 9 \times 9 - 99 + (9 + 9 + 9 + 9)/9.
635 = 9 \times 99 - ((9+9)/9)^{(9-9/9)}.
636 = 9 \times (9 \times 9 - 9) - (99 + 9)/9.
637 = 9 \times (9 \times 9 - 9) - 99/9.
638 = 9 \times (9 \times 9 - 9) - 9 - 9/9.
639 = 9 \times (9 \times 9 - 9) - 9.
640 = 9 \times (9 \times 9 - 9) - 9 + 9/9.
641 = 9 \times (9 \times 9 - 9) - 9 + (9 + 9)/9.
642 = 9 \times (9 \times 9 - 9) - 9 + (9 + 9 + 9)/9.
643 = 9 \times (9 \times 9 - 9) - (99 - 9)/(9 + 9).
644 = (9 \times 9 + 99/9) \times (9 - (9 + 9)/9).
645 = 9 \times (9 \times 9 - 9) - (9 + 9 + 9)/9.
646 = 9 \times (9 \times 9 - 9) - (9 + 9)/9.
647 = 9 \times (9 \times 9 - 9) - 9/9.
648 = 9 \times (9 \times 9 - 9).
649 = 9 \times (9 \times 9 - 9) + 9/9.
650 = 9 \times (9 \times 9 - 9) + (9 + 9)/9.
651 = 9 \times (9 \times 9 - 9) + (9 + 9 + 9)/9.
652 = 9 \times (9 \times 9 - 9) + (9 \times 9 - 9)
9)/(9+9).
653 = 9 \times (9 \times 9 - 9) + (99 - 9)/(9 + 9).
654 = 9 \times (9 \times 9 - 9) + 9 - (9 + 9 + 9)/9.
655 = 9 \times (9 \times 9 - 9) + 9 - (9 + 9)/9.
656 = 9 \times (9 \times 9 - 9) + 9 - 9/9.
657 = 9 \times (9 \times 9 - 9) + 9.
658 = 9 \times (9 \times 9 - 9) + 9 + 9/9.
659 = 9 \times (9 \times 9 - 9) + 99/9.
660 = 9 \times (9 \times 9 - 9) + (99 + 9)/9.
661 = 9 \times (9 \times 9 - 9) + (99 + 9 + 9)/9.
662 = 9 \times (9 \times 9 - 9) + 9 + (99 - 9)
9)/(9+9).
663 = 9 \times (9 \times 9 - 9) + 9 + 9 - (9 + 9)
9+9)/9.
```

 $601 = ((9+9)/9)^9 + 99 - 9 - 9/9.$

```
664 = (9 \times 9 + (9 + 9)/9) \times (9 - 9/9).
                                                           730 = 9 \times 9 \times 9 + 9/9.
                                                                                                                       796 = 9 \times 99 - 99 + (9 + 9 + 9 + 9)/9.
665 = 9 \times (9 \times 9 - 9) + 9 + 9 - 9/9.
                                                           731 = 9 \times 9 \times 9 + (9 + 9)/9.
                                                                                                                       797 = 9 \times (99 - 9) - (99 + 9 + 9)/9.
666 = 9 \times (9 \times 9 - 9) + 9 + 9.
                                                           732 = 9 \times 9 \times 9 + (9 + 9 + 9)/9.
                                                                                                                       798 = 9 \times (99 - 9) - (99 + 9)/9.
667 = 9 \times (9 \times 9 - 9) + 9 + 9 + 9/9.
                                                           733 = 9 \times 9 \times 9 + (9 \times 9 - 9)/(9 + 9).
                                                                                                                       799 = 9 \times (99 - 9) - 99/9
                                                                                                                       800 = 9 \times (99 - 9) - 9 - 9/9.
668 = 9 \times (9 \times 9 - 9) + 9 + 99/9.
                                                           734 = 9 \times 9 \times 9 + (99 - 9)/(9 + 9).
669 = 9 \times (9 \times 9 - 9) + 9 + (99 + 9)/9.
                                                           735 = 9 \times 9 \times 9 + (99 + 9)/(9 + 9).
                                                                                                                       801 = 9 \times (99 - 9) - 9.
                                                                                                                       802 = 9 \times (99 - 9) - 9 + 9/9.
670 = 9 \times (9 \times 9 - 9) + (99 + 99)/9.
                                                           736 = 9 \times 9 \times 9 + 9 - (9 + 9)/9.
                                                                                                                       803 = 9 \times 99 - 99 + 99/9.
671 = 99 \times (9 \times 9 - 9 - 99/9)/9.
                                                           737 = 9 \times 9 \times 9 + 9 - 9/9.
672 = (9-9/9) \times (9 \times 9 + (9+9+9)/9).
                                                           738 = 9 \times 9 \times 9 + 9.
                                                                                                                       804 = 9 \times (99 - 9) - 9 + (9 + 9 + 9)/9.
673 = 9 \times (9+9) + ((9+9)/9)^9 - 9/9.
                                                           739 = 9 \times 9 \times 9 + 9 + 9/9.
                                                                                                                       805 = 9 \times (99 - 9) - (99 - 9)/(9 + 9).
674 = 9 \times (9+9) + ((9+9)/9)^9.
                                                                                                                       806 = 9 \times (99 - 9) - (9 + 9 + 9 + 9)/9.
                                                           740 = 9 \times 9 \times 9 + 99/9.
675 = 9 \times (9 \times 9 - 9) + 9 + 9 + 9.
                                                           741 = 9 \times 9 \times 9 + (99 + 9)/9.
                                                                                                                       807 = 9 \times (99 - 9) - (9 + 9 + 9)/9.
676 = (9+9+9-9/9)^{((9+9)/9)}.
                                                           742 = 9 \times 9 \times 9 + (99 + 9 + 9)/9.
                                                                                                                       808 = 9 \times (99 - 9) - (9 + 9)/9.
677 = 9 \times (9 \times 9 - 9) + 9 + 9 + 99/9.
                                                           743 = 9 \times 9 \times 9 + 9 + (99 - 9)/(9 + 9).
                                                                                                                       809 = 9 \times (99 - 9) - 9/9.
678 = 999/9 + 9 \times (9 \times 9 - 9 - 9).
                                                           744 = 9 \times 9 \times 9 + 9 + 9 - (9 + 9 + 9)/9.
                                                                                                                       810 = 9 \times (99 - 9).
679 = 9 \times 9 \times 9 - (9 \times 99 + 9)/(9 + 9).
                                                                                                                       811 = 9 \times (99 - 9) + 9/9.
                                                           745 = 9 \times 9 \times 9 + 9 + 9 - (9 + 9)/9.
680 = 9 \times 9 \times 9 - (9 \times 99 - 9)/(9 + 9).
                                                                                                                       812 = 9 \times (99 - 9) + (9 + 9)/9.
                                                           746 = 9 \times 9 \times 9 + 9 + 9 - 9/9.
681 = -999/9 + 99 \times (9 - 9/9).
                                                           747 = 9 \times 9 \times 9 + 9 + 9.
                                                                                                                       813 = 9 \times (99 - 9) + (9 + 9 + 9)/9.
682 = (9 - (9 + 9)/9) \times 99 - 99/9
                                                           748 = 9 \times 9 \times 9 + 9 + 9 + 9/9.
                                                                                                                       814 = 9 \times (99-9) + (9 \times 9-9)/(9+9).
683 = ((9+9)/9)^9 + 9 + 9 \times (9+9).
                                                           749 = 9 \times 9 \times 9 + 9 + 99/9.
                                                                                                                       815 = 9 \times (99 - 9) + (99 - 9)/(9 + 9).
684 = 99 \times (9 - (9 + 9)/9) - 9.
                                                           750 = 9 \times 9 \times 9 + 9 + (99 + 9)/9.
                                                                                                                       816 = 9 \times 9 \times 9 + 99 - (99 + 9)/9.
685 = (9 - 9/9) \times (99 - 9/9) - 99.
                                                           751 = 9 \times 9 \times 9 + (99 + 99)/9.
                                                                                                                       817 = 9 \times 9 \times 9 + 99 - 99/9.
686 = (9 - (9 + 9)/9) \times (99 - 9/9).
                                                           752 = 9 \times 9 \times 9 + (99 + 99 + 9)/9.
                                                                                                                       818 = 9 \times (99 - 9) + 9 - 9/9.
687 = (99 - (99 + 9)/9) \times (9 - 9/9) - 9.
                                                           753 = 9 \times 99 - 999/9 - 9 - 9 - 9.
                                                                                                                       819 = 9 \times 9 \times 9 + 99 - 9.
688 = 9 \times 9 \times 9 - (9 \times 9 \times 9 + 9)/(9 + 9).
                                                           754 = 9 \times 9 \times 9 + 9 + 9 + 9 - (9 + 9)/9.
                                                                                                                       820 = 9 \times 9 \times 9 + 99 - 9 + 9/9.
689 = 9 \times 9 \times 9 - (9 \times 9 \times 9 - 9)/(9 + 9).
                                                           755 = 9 \times 9 \times 9 + 9 + 9 + 9 - 9/9.
                                                                                                                       821 = 9 \times (99 - 9) + 99/9.
                                                           756 = 9 \times 9 \times 9 + 9 + 9 + 9.
690 = 9 \times (99 - 9) - 9 - 999/9.
                                                                                                                       822 = 9 \times (99 - 9) + (99 + 9)/9.
691 = 9 \times 9 \times 9 - 9 - 9 - 9 - 99/9.
                                                           757 = 9 \times 9 \times 9 + 9 + 9 + 9 + 9/9.
                                                                                                                       823 = 9 \times (99 - 9) + (99 + 9 + 9)/9.
                                                                                                                       824 = ((999 + 9)/9 - 9) \times (9 - 9/9).
692 = 99 \times (9 - (9 + 9)/9) - 9/9.
                                                           758 = 9 \times 9 \times 9 + 9 + 9 + 99/9.
                                                           759 = 9 \times (9 \times 9 - 9) + 999/9.
693 = 99 \times (9 - (9 + 9)/9).
                                                                                                                       825 = (999/9 - 9) \times (9 - 9/9) + 9.
694 = 99 \times (9 - (9 + 9)/9) + 9/9.
                                                           760 = 9 \times 9 \times 9 + 9 + (99 + 99)/9.
                                                                                                                       826 = 9 \times 9 \times 9 + 99 - (9 + 9)/9.
695 = 99 \times (9 - (9 + 9)/9) + (9 + 9)/9.
                                                           761 = 99 \times (9 \times 9 - 99/9)/9 - 9.
                                                                                                                       827 = 9 \times 9 \times 9 + 99 - 9/9.
696 = (9 - 9/9) \times (99 - (99 + 9)/9).
                                                           762 = 9 \times 99 - 9 - 9 - 999/9.
                                                                                                                       828 = 9 \times 9 \times 9 + 99.
697 = 9 \times (99 - 9) - (999 + 9 + 9)/9.
                                                           763 = (9/9 + 99 + 9) \times (9 - (9 + 9)/9).
                                                                                                                       829 = 9 \times 9 \times 9 + 99 + 9/9.
698 = 9 \times (99 - 9) - (999 + 9)/9.
                                                           764 = 9 \times 9 \times 9 + 9 + 9 + 9 + 9 - 9/9.
                                                                                                                       830 = 9 \times (9 \times 9 + 9) + 9 + 99/9.
699 = 9 \times (9 \times 9 + 9) - 999/9.
                                                           765 = 9 \times 9 \times 9 + 9 + 9 + 9 + 9.
                                                                                                                       831 = 9 \times 9 \times 9 - 9 + 999/9.
700 = 9 \times 9 \times 9 - 9 - 9 - 99/9.
                                                           766 = 9 \times 9 \times 9 + 9 + 9 + 9 + 9 + 9/9.
                                                                                                                       832 = 9 \times 9 \times 9 - 9 + (999 + 9)/9.
701 = 9 \times 9 \times 9 - 9 - 9 - 9 - 9/9.
                                                           767 = 9 \times 9 \times 9 + 9 + 9 + 9 + 99/9.
                                                                                                                       833 = 9 \times 9 \times 9 - 9 + (999 + 9 + 9)/9.
702 = 9 \times (99 - 9) - 99 - 9.
                                                           768 = (9-9/9) \times (99-(9+9+9)/9).
                                                                                                                       834 = 9 \times 9 \times 9 + 99 + 9 - (9 + 9 + 9)/9.
703 = 9 \times 9 \times 9 - 9 - 9 - 9 + 9/9.
                                                           769 = 9 \times 99 - (99 + 999)/9.
                                                                                                                       835 = 9 \times 9 \times 9 + 99 + 9 - (9 + 9)/9.
704 = (99 - 99/9) \times (9 - 9/9).
                                                           770 = 99 \times (9 \times 9 - 99/9)/9.
                                                                                                                       836 = 999 - 9 \times (9 + 9) - 9/9.
705 = 9 \times 9 \times 9 - (99 + 99 + 9 + 9)/9.
                                                           771 = 9 \times 99 - 9 - 999/9.
                                                                                                                       837 = 999 - 9 \times (9 + 9).
706 = 9 \times 9 \times 9 - (99 + 99 + 9)/9.
                                                           772 = 9 \times 99 - 9 - 99 - 99/9.
                                                                                                                       838 = 9 \times 9 \times 9 + 99 + 9 + 9/9.
707 = 9 \times 9 \times 9 - (99 + 99)/9.
                                                           773 = 9 \times 99 - 99 - 9 - 9 - 9/9.
                                                                                                                       839 = 9 \times 9 \times 9 + 99 + 99/9.
708 = 9 \times 9 \times 9 - 9 - (99 + 9)/9.
                                                           774 = 9 \times 99 - 99 - 9 - 9.
                                                                                                                       840 = 9 \times 9 \times 9 + 999/9.
709 = 9 \times 9 \times 9 - 9 - 99/9.
                                                           775 = (99 - 9/9) \times (9 - 9/9) - 9.
                                                                                                                       841 = (9 + 9 + 99/9)(9 + 9)/9.
710 = 9 \times 9 \times 9 - 9 - 9 - 9/9.
                                                           776 = (9 - 9/9) \times (99 - (9 + 9)/9).
                                                                                                                       842 = 9 \times 99 - (99 \times 9 - 9)/(9 + 9).
711 = 9 \times 9 \times 9 - 9 - 9.
                                                           777 = 999 \times (9 - (9 + 9)/9)/9.
                                                                                                                       843 = 9 \times (99 - 9) + 9 \times 99/(9 + 9 + 9).
                                                           778 = 9 \times 9 \times 9 + (9 \times 99 - 9)/(9 + 9).
712 = 9 \times 9 \times 9 - 9 - 9 + 9/9.
                                                                                                                       844 = 9 \times 99 - 9 - 9 - 9 - 9 - 99/9.
713 = 9 \times 9 \times 9 - 9 - 9 + (9+9)/9.
                                                           779 = 9 \times 99 - (999 + 9)/9.
                                                                                                                       845 = 9 \times 9 \times 9 + 99 + 9 + 9 - 9/9.
                                                           780 = 9 \times 99 - 999/9
                                                                                                                       846 = 9 \times 9 \times 9 + 99 + 9 + 9.
714 = 9 \times 9 \times 9 - 9 - 9 + (9 + 9 + 9)/9.
715 = 9 \times 9 \times 9 - 9 - (99 - 9)/(9 + 9).
                                                           781 = 9 \times 99 - 99 - 99/9.
                                                                                                                       847 = 9 \times 9 \times 9 + 99 + 9 + 9 + 9/9.
716 = 9 \times 9 \times 9 - (99 + 9 + 9)/9.
                                                           782 = 9 \times 99 - 99 - 9 - 9/9.
                                                                                                                       848 = 9 \times 9 \times 9 + 9 + (999 - 9)/9.
717 = 9 \times 9 \times 9 - (99 + 9)/9.
                                                           783 = 9 \times 99 - 99 - 9.
                                                                                                                       849 = 9 \times 9 \times 9 + 9 + 999/9.
718 = 9 \times 9 \times 9 - 9 - (9 + 9)/9.
                                                           784 = 9 \times 99 - 99 - 9 + 9/9.
                                                                                                                       850 = 9 \times 9 \times 9 + 99 \times 99/(9 \times 9).
719 = 9 \times 9 \times 9 - 9 - 9/9.
                                                           785 = 9 \times 99 - 99 - 9 + (9 + 9)/9.
                                                                                                                       851 = 9 \times 9 \times 9 + (99 + 999)/9.
                                                                                                                       852 = 9 \times (99 + 9) - 9 - 999/9.
720 = 9 \times 9 \times 9 - 9.
                                                           786 = 9 \times 99 - 99 - 9 + (9 + 9 + 9)/9.
                                                           787 = 9999/9 - (9+9) \times (9+9).
                                                                                                                       853 = 9 \times 99 - 9 - 9 - 9 - 99/9.
721 = 9 \times 9 \times 9 - 9 + 9/9.
722 = 9 \times 9 \times 9 - 9 + (9+9)/9.
                                                           788 = 9 \times 99 + 9 - (999 + 9)/9.
                                                                                                                       854 = 9 \times 99 - 9 - 9 - 9 - 9 - 9/9.
723 = 9 \times 9 \times 9 - 9 + (9 + 9 + 9)/9.
                                                           789 = 9 \times 99 + 9 - 999/9.
                                                                                                                       855 = 9 \times 99 - 9 - 9 - 9 - 9.
724 = 9 \times 9 \times 9 - (99 - 9)/(9 + 9).
                                                                                                                       856 = 9 \times 99 - 9 - 9 - 9 - 9 + 9/9.
                                                           790 = 9 \times (9 \times 9 + 9) - 9 - 99/9.
725 = 9 \times 9 \times 9 - (9 + 9 + 9 + 9)/9.
                                                           791 = 9 \times 99 - 99 - 9/9.
                                                                                                                       857 = 9 \times 9 \times 9 + 99 + 9 + 9 + 99/9.
726 = 9 \times 9 \times 9 - (9 + 9 + 9)/9.
                                                           792 = 9 \times 99 - 99.
                                                                                                                       858 = 9 \times 9 \times 9 + 9 + 9 + 999/9.
                                                           793 = 9 \times 99 - 99 + 9/9.
727 = 9 \times 9 \times 9 - (9 + 9)/9.
                                                                                                                       859 = 9 \times 99 - 9 - (99 + 99 + 9)/9.
728 = 9 \times 9 \times 9 - 9/9.
                                                           794 = 9 \times 99 - 99 + (9 + 9)/9.
                                                                                                                       860 = 9 \times 99 - 9 - (99 + 99)/9.
729 = 9 \times 9 \times 9.
                                                           795 = 9 \times 99 - 99 + (9 + 9 + 9)/9.
                                                                                                                       861 = 9 \times (99 + 9) - 999/9.
```

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862 = 9 \times 99 - 9 - 9 - 99/9.
                                                      909 = 9 \times 99 + 9 + 9.
                                                                                                             956 = 9 \times (9+99) - 9 - 9 + (9+9)/9.
863 = 9 \times 99 - 9 - 9 - 9 - 9/9.
                                                      910 = 9 \times 99 + 9 + 9 + 9/9.
                                                                                                             957 = 99 \times (99 - (99 + 9)/9)/9.
864 = (99 + 9) \times (9 - 9/9).
                                                      911 = 9 \times 99 + 9 + 99/9.
                                                                                                             958 = 9 + 9999/9 - 9 \times (9 + 9).
865 = 9 \times (99 + 9) - 99 - 9 + 9/9.
                                                      912 = 9 \times 99 + 9 + (99 + 9)/9.
                                                                                                             959 = 9 \times (99 + 9) - (99 + 9 + 9)/9.
866 = 9 \times 99 - 9 - 9 - 9 - 9 + 99/9.
                                                      913 = 9 \times 99 + (99 + 99)/9.
                                                                                                             960 = (99 + 9) \times (9 \times 9 - 9/9)/9.
867 = 9 \times 9 \times 9 + 9 + 9 + 9 + 999/9.
                                                      914 = 9 \times 99 + (99 + 99 + 9)/9.
                                                                                                             961 = 9 \times (99 + 9) - 99/9.
868 = 9 \times 99 - (99 + 99 + 9)/9.
                                                      915 = 999 - 9 \times 9 - (9 + 9 + 9)/9.
                                                                                                             962 = 9 \times (99 + 9) - 9 - 9/9.
                                                      916 = 999 - 9 \times 9 - (9 + 9)/9.
                                                                                                             963 = 9 \times (99 + 9) - 9.
869 = 9 \times 99 - (99 + 99)/9.
870 = 9 \times 99 - 9 - (99 + 9)/9.
                                                      917 = 999 - 9 \times 9 - 9/9.
                                                                                                             964 = 9 \times (99 + 9) - 9 + 9/9.
                                                      918 = 999 - 9 \times 9.
871 = 9 \times 99 - 9 - 99/9.
                                                                                                             965 = 9 \times (99 + 9) - 9 + (9 + 9)/9.
872 = 9 \times 99 - 9 - 9 - 9/9.
                                                      919 = 999 - 9 \times 9 + 9/9.
                                                                                                             966 = 9 \times (99 + 9) - 9 + (9 + 9 + 9)/9.
873 = 9 \times (99 + 9) - 99
                                                      920 = 999 - 9 \times 9 + (9 + 9)/9.
                                                                                                             967 = 9 \times (99 + 9) - (99 - 9)/(9 + 9).
874 = 9 \times 99 - 9 - 9 + 9/9.
                                                      921 = 9 \times (9 \times 9 + 9) + 999/9.
                                                                                                             968 = 99 \times (99 - 99/9)/9.
875 = 9 \times 99 - 9 - 9 + (9 + 9)/9.
                                                      922 = 9 \times (99 - 9) + (999 + 9)/9.
                                                                                                             969 = 9 \times (99 + 9) - (9 + 9 + 9)/9.
                                                                                                             970 = 9 \times (99 + 9) - (9 + 9)/9.
876 = 9 \times 99 - 9 - 9 + (9 + 9 + 9)/9.
                                                      923 = 9 \times 99 + 9 + (99 + 99 + 9)/9.
877 = 9 \times 99 - 9 - (99 - 9)/(9 + 9).
                                                      924 = 9 \times (99 + 99/(9 + 9 + 9)).
                                                                                                             971 = 9 \times (99 + 9) - 9/9.
878 = 9 \times 99 - (99 + 9 + 9)/9.
                                                      925 = ((9+9)/9)(9+9/9) - 99.
                                                                                                             972 = 9 \times (99 + 9).
                                                      926 = 999 - 9 \times 9 + 9 - 9/9.
879 = 9 \times 99 - (99 + 9)/9.
                                                                                                             973 = 9 \times (99 + 9) + 9/9.
                                                      927 = 999 - 9 \times 9 + 9.
880 = 9 \times 99 - 99/9.
                                                                                                             974 = 9 \times (99 + 9) + (9 + 9)/9.
881 = 9 \times 99 - 9 - 9/9.
                                                      928 = 999 - 9 \times 9 + 9 + 9/9.
                                                                                                             975 = 9 \times (99 + 9) + (9 + 9 + 9)/9.
882 = 9 \times 99 - 9.
                                                      929 = 999 - 9 \times 9 + 99/9.
                                                                                                             976 = 999 - (99 + 99 + 9)/9.
883 = 9 \times 99 - 9 + 9/9.
                                                      930 = (999/9 - 9 - 9) \times (9/9 + 9).
                                                                                                             977 = 999 - (99 + 99)/9.
884 = 9 \times 99 - 9 + (9 + 9)/9.
                                                      931 = 9999/9 - 9 \times 9 - 99.
                                                                                                             978 = 999 - 9 - (99 + 9)/9.
885 = 9 \times 99 - 9 + (9 + 9 + 9)/9.
                                                      932 = 9 \times 99 + (9 \times 9 \times 9 + 9)/(9 + 9).
                                                                                                             979 = 999 - 9 - 99/9.
886 = 9 \times 99 - (99 - 9)/(9 + 9).
                                                      933 = 999 - 9 \times 9 + 9 + 9 - (9 + 9 + 9)/9.
                                                                                                             980 = (9 + 9/9) \times (99 - 9/9).
                                                      934 = ((9+9)/9)(9+9/9) - 9 \times 9 - 9.
                                                                                                             981 = 999 - 9 - 9.
887 = 9 \times 99 - (9 \times 9 - 9)/(9 + 9).
                                                      935 = 999 - 9 \times 9 + 9 + 9 - 9/9.
                                                                                                             982 = 999 - 9 - 9 + 9/9.
888 = 999 - 999/9.
                                                                                                             983 = 9 \times (99 + 9) + 99/9.
889 = 9 \times 99 - (9 + 9)/9.
                                                      936 = 999 - 9 \times 9 + 9 + 9.
                                                      937 = 999 - 9 \times 9 + 9 + 9 + 9/9.
890 = 9 \times 99 - 9/9.
                                                                                                             984 = (99 + 9) \times (9 \times 9 + 9/9)/9.
                                                                                                             985 = 999 - (99 + 9 + 9 + 9)/9.
891 = 9 \times 99.
                                                      938 = 999 - 9 \times 9 + 9 + 99/9.
892 = 9 \times 99 + 9/9.
                                                      939 = 9 \times 9 \times 9 + 99 + 999/9.
                                                                                                             986 = 999 - (99 + 9 + 9)/9.
893 = 9 \times 99 + (9 + 9)/9.
                                                      940 = 9 \times 99 + (9 \times 99 - 9)/(9 + 9).
                                                                                                             987 = 999 - (99 + 9)/9.
894 = 9 \times 99 + (9 + 9 + 9)/9.
                                                      941 = 9 \times 99 + (9 \times 99 + 9)/(9 + 9).
                                                                                                             988 = 999 - 99/9.
895 = 9 \times 99 + (9 \times 9 - 9)/(9 + 9).
                                                      942 = 9 \times (99 + 9 + 9) - 999/9.
                                                                                                             989 = 999 - 9 - 9/9.
896 = (999 + 9) \times (9 - 9/9)/9.
                                                      943 = ((9+9)/9)(9+9/9) - 9 \times 9.
                                                                                                             990 = 999 - 9.
                                                                                                             991 = 999 - 9 + 9/9.
897 = 9 \times 99 + 9 - (9 + 9 + 9)/9.
                                                      944 = 9 \times (9 + 99) - 9 - 9 - 9 - 9/9.
                                                      945 = 9 \times (9 + 99) - 9 - 9 - 9.
                                                                                                             992 = 999 - 9 + (9 + 9)/9.
898 = 9 \times 99 + 9 - (9 + 9)/9.
                                                                                                             993 = 999 - 9 + (9 + 9 + 9)/9.
899 = 9 \times 99 + 9 - 9/9.
                                                      946 = 9 \times (9 + 99) - 9 - 9 - 9 + 9/9.
                                                      947 = 9 \times 99 + (999 + 9)/(9 + 9).
                                                                                                             994 = 999 - (99 - 9)/(9 + 9).
900 = 9 \times 99 + 9.
                                                      948 = (99+9) \times (9 \times 9 - (9+9)/9)/9.
901 = 9 \times 99 + 9 + 9/9.
                                                                                                             995 = 999 - (9 + 9 + 9 + 9)/9.
                                                      949 = 9999/9 - 9 \times (9 + 9).
902 = 9 \times 99 + 99/9.
                                                                                                             996 = 999 - (9 + 9 + 9)/9.
                                                                                                             997 = 999 - (9 + 9)/9.
903 = 9 \times 99 + (99 + 9)/9.
                                                      950 = 9 \times (99 + 9) - (99 + 99)/9.
904 = 9 \times 99 + (99 + 9 + 9)/9.
                                                      951 = 9 \times (99 + 9) - 9 - (99 + 9)/9.
                                                                                                             998 = 999 - 9/9.
905 = 9 \times 99 + 9 + (99 - 9)/(9 + 9).
                                                      952 = 9 \times (9 + 99) - 9 - 99/9.
                                                                                                             999 = 999.
906 = 9 \times 99 + 9 + 9 - (9 + 9 + 9)/9.
                                                      953 = 9 \times (9 + 99) - 9 - 9 - 9/9.
                                                                                                             1000 = 999 + 9/9.
907 = 9 \times 99 + 9 + 9 - (9 + 9)/9.
                                                      954 = 9 \times (9 + 99) - 9 - 9.
908 = 9 \times 99 + 9 + 9 - 9/9.
                                                      955 = 9 \times (9 + 99) - 9 - 9 + 9/9.
```

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References

- [1] ABRAHAMS, M, Lots of numbers, plain and almost simple, IMPROBABLE RESEACH, http://www.improbable.com/2013/02/12/lots-of-numbers-plain-and-almost-simple.
- [2] ABRAHAMS, M, Lots more numbers, deemed "crazy sequential", IMPROBABLE RESEACH, http://www.improbable.com/2013/06/08/lots-more-numbers-deemed-crazy-sequential.
- [3] DUDENEY, H.E., Amusements in Mathematics, EBD E-Books Directory.com, 1917.
- [4] MADACHY, J.S., Mathematics on Vacations, Charlers Scriber's Son, New York, 1966.

- [6] NEBUS, J., Counting From 52 to 11,108, nebusresearch, http://nebusresearch.wordpress.com/2013/06/10/counting-from-52-to-11108/
- [7] TANEJA, I.J., Crazy Sequential Representation: Numbers from 0 to 11111 in terms of Increasing and Decreasing Orders of 1 to 9, http://arxiv.org/abs/1302.1479.

[8] TANEJA, I.J., Selfie Numbers: Consecutive Representations in Increasing and Decreasing Orders, http://rgmia.org/papers/v17/v17a140.pdf, 2014