The Virtual Learning Environment for Computer Programming

Numerology P50084_en

Segon Concurs de Programació de la UPC - Segona Semifinal (2004-09-15)

According to the Bible, 666 is the "number of the beast". Indeed, in Revelation 13:18 it is said:

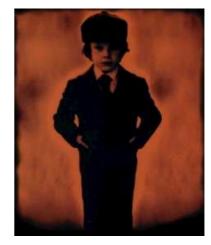
"... count the number of the beast: for it is the number of a man; and his number is 666."

Many theologists have associated 666 with the Antichrist. Believe it or not, 666 has many interesting numerological properties. For instance,

$$666 = 3^{6} - 2^{6} + 1^{6}$$

$$= 1 + 2 + 3 + \dots + 6 \cdot 6$$

$$= 2^{2} + 3^{2} + 5^{2} + 7^{2} + 11^{2} + 13^{2} + 17^{2}.$$



Another curious property is that it is possible (there are exactly two ways) to insert '+' signs into the number 123456789 to get 666:

$$666 = 1 + 2 + 3 + 4 + 567 + 89 = 123 + 456 + 78 + 9,$$

and it is also possible (there is exactly one way) to do the same with the number 987654321:

$$666 = 9 + 87 + 6 + 543 + 21.$$

Let's play numerology. Write a program such that, given two numbers n and m, prints all the ways to insert '+' signs into m so that the sum is n.

Input

Input consists of several cases. Every case has two strictly positive natural numbers n and m, each not larger than 10^{12} . Assume that the leftmost digit of n and of m is never zero.

Output

For every case, print all the ways to get n by adding the digits of m as explained above. The solutions must appear in lexicographical order. If no solution exists, state so.

Sample input

666 987654321 5 321 4 1003

Sample output

$$666 = 9 + 87 + 6 + 543 + 21$$
No solution for 5 321.
 $4 = 1 + 0 + 0 + 3$
 $4 = 1 + 00 + 3$
 $4 = 1 + 000 + 3$
 $4 = 1 + 003$

Problem information

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