

B. Little Dima and Equation

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Little Dima misbehaved during a math lesson a lot and the nasty teacher Mr. Pickles gave him the following problem as a punishment.

Find all integer solutions x ($0 < x < 10^9$) of the equation:

$$x = b \cdot s(x)^a + c,$$

where a, b, c are some predetermined constant values and function $s(x)$ determines the sum of all digits in the decimal representation of number x .

The teacher gives this problem to Dima for each lesson. He changes only the parameters of the equation: a, b, c . Dima got sick of getting bad marks and he asks you to help him solve this challenging problem.

Input

The first line contains three space-separated integers: a, b, c ($1 \leq a \leq 5$; $1 \leq b \leq 10000$; $-10000 \leq c \leq 10000$).

Output

Print integer n — the number of the solutions that you've found. Next print n integers in the increasing order — the solutions of the given equation. Print only integer solutions that are larger than zero and strictly less than 10^9 .

Examples

input
3 2 8
output
3 10 2008 13726

input
1 2 -18
output
0

input
2 2 -1
output
4 1 31 337 967