

B. Position in Fraction

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

You have a fraction $\frac{a}{b}$. You need to find the first occurrence of digit c into decimal notation of the fraction after decimal point.

Input

The first contains three single positive integers a, b, c ($1 \leq a < b \leq 10^5, 0 \leq c \leq 9$).

Output

Print position of the first occurrence of digit c into the fraction. Positions are numbered from 1 after decimal point. If there is no such position, print -1 .

Examples

input
1 2 0
output
2

input
2 3 7
output
-1

Note

The fraction in the first example has the following decimal notation: $\frac{1}{2} = 0.5$. The first zero stands on second position.

The fraction in the second example has the following decimal notation: $\frac{2}{3} = 0.\overline{6}$. There is no digit 7 in decimal notation of the fraction.