Given a prime P, $2 \le P < 2^{31}$, an integer B, $2 \le B < P$, and an integer N, $2 \le N < P$, compute the discrete logarithm of N, base B, modulo P. That is, find an integer L such that

$$B^L == N (mod\ P)$$

Input

Read several lines of input, each containing P, B, N separated by a space.

Output

For each line print the logarithm on a separate line. If there are several, print the smallest; if there is none, print ‘‘`no solution`’’.

Note: The solution to this problem requires a well known result in number theory that is probably expected of you for Putnam but not ACM competitions. It is Fermat's theorem that states

$$B^{P-1} == 1 (mod\ P)$$

for any prime P and some other (fairly rare) numbers known as base-B pseudoprimes. A rarer subset of the base-B pseudoprimes, known as Carmichael numbers, are pseudoprimes for every base between 2 and $P-1$. A corollary to Fermat's theorem is that for any m

$$B^{-m} == B^{P-1-m} (mod\ P)$$

Sample Input

```
5 2 1
5 2 2
5 2 3
5 2 4
5 3 1
5 3 2
5 3 3
5 3 4
5 4 1
5 4 2
5 4 3
5 4 4
12345701 2 1111111
1111111121 65537 1111111111
```

Sample Output

```
0
1
3
2
0
3
1
2
0
no solution
no solution
1
9584351
462803587
```