

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

F. Small Operations

time limit per test: 3 seconds
memory limit per test: 256 megabytes

Given an integer x and an integer k . In one operation, you can perform one of two actions:

- choose an integer $1 \leq a \leq k$ and assign $x = x \cdot a$;
- choose an integer $1 \leq a \leq k$ and assign $x = \frac{x}{a}$, where the value of $\frac{x}{a}$ must be an integer.

Find the minimum number of operations required to make the number x equal to y , or determine that it is impossible.

Input

The first line of the input contains one integer t ($1 \leq t \leq 10^4$) — the number of test cases.

The only line of each test case contains three integers x, y and k ($1 \leq x, y, k \leq 10^6$).

It is guaranteed that the sum of x and the sum of y across all test cases does not exceed 10^8 .

Output

For each test case, output -1 if it is impossible to achieve $x = y$ using the given operations, and the minimum number of required operations otherwise.

Example

input	Copy
8	
4 6 3	
4 5 3	
4 6 2	
10 45 3	
780 23 42	
11 270 23	
1 982800 13	
1 6 2	
output	Copy
2	
-1	
-1	
3	
3	
3	
6	
-1	

Codeforces Round 1027 (Div. 3)

Finished

Practice

Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

Submit?

Language: GNU G++23 14.2 (64 bit, ms)

Choose file: Choose File No file chosen

Submit

Last submissions

Submission	Time	Verdict
322406136	Jun/01/2025 17:11	Accepted
322405733	Jun/01/2025 17:08	Time limit exceeded on test 6
321529650	May/26/2025 19:46	Time limit exceeded on test 6
321527479	May/26/2025 19:43	Time limit exceeded on test 3
321525353	May/26/2025 19:40	Time limit exceeded on test 3
321514442	May/26/2025 19:23	Time limit exceeded on test 6
321512367	May/26/2025 19:20	Time limit exceeded on test 6
321501342	May/26/2025 19:04	Time limit exceeded on test 3



Problem tags

binary searchbrute force

dfs and similar dp math
number theory sortings *2000

No tag edit access

→ **Contest materials**

- Announcement 
- Tutorial 

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