Problem D

Divisors

Think on a positive number n. Now tell me a divisor A of n. Now give me another number B that is not a divisor of n. Now a multiple C. And a non-multiple D. The number that you thought is...

It looks like magic, but it is math!! Is it that, given A, B, C and D, you can find what the original number n is? Note that it may exist more than one solution.

In this problem, given the values of A, B, C, and D you should write a program that determines which is the lowest number n that may have been thought or conclude that there is not a possible value of n.

Input

The input contains several test cases. In each test case, 4 integer numbers A, B, C and D as described above ($1 \leq A, B, C, D \leq 10^9$).

Output

For each test case in the input, In the case there exist at least one number n which A, B, C and D make sense, the program should print a single line with the lowest possible number n, otherwise print -1.

Examples

Input	Output
2 12 8 2 3 4 60 105	4 6