

E. FUNCTION

Consider the sequence f defined by the following recursive formula:

$$\begin{cases} f(0) = 1 \\ f(2n) = f(n) + f(n-1) & \text{for all positive integers } n \\ f(2n+1) = f(n) & \text{for all non-negative integers } n \end{cases}$$

Given two positive integers p and q , $p, q \leq 10^4$. Find a non-negative integer n such that:

$$\frac{f(n)}{f(n+1)} = \frac{p}{q}$$

If there existed no value of n , print -1.

If there are multiple satisfied values of n , print the smallest one.

INPUT

Each line of the input consists of two numbers p and q .

OUTPUT

For each pair of p and q , print the result as described above in one line.

Sample Input	Sample Output
2 3	5
1 4	7
5 5	0

EXPLANATION

$$f(0) = 1, f(1) = 1, f(2) = 2, f(3) = 1, f(4) = 3, f(5) = 2, f(6) = 3, f(7) = 1, f(8) = 4$$