Can We Get The Number

Time Limit: 1 Second
Memory Limit: 256 MB

You are given two positive integers x and y. Find the maximum positive integer z such that z cannot be represented as $ax + by$, where $a \geq 0$ and $b \geq 0$. If such integer does not exist, output -1.

Input

The first line contains one integer T ($1 \leq T \leq 10^5$), the number of test cases.

The next T lines of input each contains two integers x and y ($1 \leq x, y \leq 10^9$), the two numbers specified above.

Output

T lines, each line has one integer z if z exist, otherwise -1.

Sample Inputs

```
4
3 7
2 3
1 8
4 6
```

Sample Outputs

```
11
1
-1
-1
```