

Primes in GCD Table

Johnny has created a table which encodes the results of some operation -- a function of two arguments. But instead of a boring multiplication table of the sort you learn by heart at prep-school, he has created a GCD (greatest common divisor) table! So he now has a table (of height a and width b), indexed from $(1,1)$ to (a,b) , and with the value of field (i,j) equal to $\gcd(i,j)$. He wants to know how many times he has used prime numbers when writing the table.

Input

First, $t \leq 10$, the number of test cases. Each test case consists of two integers, $1 \leq a, b < 10^7$.

Output

For each test case write one number - the number of prime numbers Johnny wrote in that test case.

Example

Input:

```
2
10 10
100 100
```

Output:

```
30
2791
```