

Tourist is a prodigy in competitive programming world.

Once he was sleeping and dreaming.

As sometimes weird dreams come.

That unlucky day he was learning maths from you, in his dream.

He was stuck at a maths problem and you had to help him.

Tourist stated the problem to you :

you are given two integers '**p**' and '**q**' ($q \leq p$).

let **num** = $(p!/q!) ^ (p+q)$

('**!**' denotes **factorial** , '**^**' denotes **exponentiation**).

you can perform an operation over **num**, several times.

Operation over num is defined as :

choose a positive integer **d** ($d > 1$), such that **num** is **divisible by d**, and **replace num by num/d**.

Now you have to make **num equals to 1** in **maximum** number of operations.

Tourist wants to know the maximum possible number of operations.

Input :

First line will contain integer **T** (the number of test cases)

next **T** lines contain two integers '**p**' and '**q**'.

Output :

output the required answer for each test case on a new line.

Constraint :

$$T \leq 10^6$$

$$1 \leq q \leq p \leq 10^7$$

sample input :

7

7 1

263 262

1 1

5000000 4999995

2 1

7 4

10 1

output :

64

525

0

229999885

3

44

165