

Teaching students is fun but it can often be embarrassing, which I experienced a few days ago. I was taking CSE3021 (Mathematical Analysis for Computer Science) class in my university and in the very first class I was teaching some very basic things. To be specific I was trying to teach students how to find trailing zeroes of  $n!$  (factorial  $n$ ) in base  $b$ . And of course many of you know that multiplicity of a prime factor  $p$  in  $n!$  can be found using the formula

$$\left\lfloor \frac{n}{p} \right\rfloor + \left\lfloor \frac{n}{p^2} \right\rfloor + \left\lfloor \frac{n}{p^3} \right\rfloor + \dots \quad \text{to inf}$$

This formula can also be used cleverly to find number of trailing zeroes in  $n!$ .

After teaching this formula I showed them how to find number of trailing zeroes in  $200!$  in decimal number system and with an evil smile asked them to find out number of trailing zeroes in  $100!$  in hexadecimal (16-based) number system. I knew that the correct answer is 24 and to my utter surprise I got a correct reply from a student within minutes and so I congratulated him. But a minute later when I checked his script I found that he actually calculated number of trailing zeroes in  $100!$  in decimal (not Hexadecimal) number system and coincidentally that both answers (Trailing zeroes in hexadecimal and decimal number system) were 24. So I was a bit embarrassed and now you have to help me find out why those two answers were same? Given a number  $n$ , you will have to find how many pair of bases  $(b_1, b_2)$  are there for which  $n!$  (Factorial  $n$ ) has exactly  $p$  trailing zeroes in both base  $b_1$  and base  $b_2$ . Here  $p$  is a positive integer not less than  $x$ .

## Input

Input file contains 1000 lines of inputs. Each line contains two integers  $n$  ( $1 \leq n \leq 100000$ ) and  $x$  ( $2 \leq x \leq 2500$ ). Input is terminated by a line containing two zeroes.

## Output

For each line of input produce one line of output. This line contains an integer which denotes number of base pairs  $(b_1, b_2)$  so that  $n!$  has exactly  $p$  trailing zeroes in both bases where  $p$  is not less than  $x$ . You can assume that inputs will be such that none of the output numbers will exceed  $5 * 10^{18}$ .

## Sample Input

```
6 2
9 3
0 0
```

## Sample Output

```
6
2
```