After wasting a significant time of his life in problem-setting, Mr. Tomisu is now searching for glory: A glory that will make him famous like Goldbach and rich like Bill Gates :). And he has chosen the field of Number Theory as his prime interest. His creator did not make him very bright and so he needs your help to solve an elementary problem, using which he will begin his pursuit for glory!

Tomisu has come to know that finding out numbers having large prime factors are very important in cryptography. Given two integers N and M, he aims to count the number of integers X between 2 and $N!$ (factorial N), having the property that all prime factors of X are greater than M.

Input

The input file contains at most 500 lines of inputs. Each line contains two integers N ($1 < N < 10000001$) and M ($1 \leq M \leq N$ and $N - M \leq 100000$). Input is terminated by a line containing two zeroes. This line should not be processed.

Output

For each line of input produce one line of output. This line contains the value $T\%100000007$ (Modulo 100000007 value of T). Here T is the total number of numbers between 1 and $N!$ (factorial N) which have prime factors greater than M.

Sample Input

```
100 10
100 20
10000 9000
0 0
```

Sample Output

```
43274465
70342844
39714141
```