11246   K-Multiple Free Set

A k-multiple free set is a set of integers where there is no pair of integers where one is equal to another integer multiplied by k. For example for $k = 2$, {1,3,4} is a valid set, but not {2,4,5}, as 4 is double of 2.

You will be given n and k. you have to determine the largest k-multiple free subset of the integers from 1 to n.

Input

First line of the input contains T ($1 \leq T \leq 1000$) the number of test case. Then following lines contains T test cases. Each case contains a line containing 2 integers n ($1 \leq n \leq 1000000000$) and k ($2 \leq k \leq 100$).

Output

For each test case output contains 1 integer the size of the largest k-multiple free subset of the integers from 1 to n.

Sample Input

```
3
10 2
100 2
1000 2
```

Sample Output

```
6
67
666
```