Special Set

Little boy Sai is fascinated with Natural Numbers. He especially likes Special Sets of order **k**. A set of numbers **S**, is called Special Set of order k if, for any two numbers **x** and **y (not necessarily distinct)** belonging to **S**, **x should not be equal to k*y**.

Now, Sai wants to find the size of maximum possible Special Set formed out of the numbers **1,2,3...n.** Hope you can help him.

Input

First line contains **t($1<=t<=10^5$)**, the number of test cases. Next **t** lines contain two space separated integers **n** and **k**.

$1<=n,k<=10^8$

Output

For each test case, output on a single line the size of maximal Special set.

Example

Input:
1

6 2

Output:

4

Explaination:

For the above case, the maximal Special set is: 1,3,4,5