D • Farey Sequence Length

Given a positive integer, ***N***, the sequence of all fractions ***a*** / ***b*** with (***0*** < ***a*** ≤ ***b***), (***1*** < ***b*** ≤ ***N***) and ***a*** and ***b*** relatively prime, listed in increasing order, is called the *Farey Sequence of order* ***N***.

For example, the *Farey Sequence of order* ***6*** is:

0/1, **1/6**, **1/5**, **1/4**, **1/3**, **2/5**, **1/2**, **3/5**, **2/3**, **3/4**, **4/5**, **5/6**, **1/1**

For this problem, you will write a program to compute the length of the *Farey sequence of order* ***N*** (input).

Input

The first line of input contains a single integer P, ($1 \le P \le 10000$), which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set consists of a single line of input. It contains the data set number, K, followed by the order N, N (2 <= N <= 10000), of the *Farey Sequence* whose length is to be found.

Output

For each data set there is a single line of output. The single output line consists of the data set number, K, followed by a single space followed by the length of the *Farey Sequence* as a decimal integer.

Sample Input	Sample Output
4 1 6 2 15 3 57 4 9999	1 13 2 73 3 1001 4 30393487