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Greater New York Programming Contest
St. Joseph's College
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H • Farey Sums

Given a positive integer, **N**, the sequence of all fractions **a** / **b** with ($0 < a \leq b$), ($1 \leq b \leq N$) 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**

If the denominators of the *Farey Sequence of order N* are:

b[1], **b[2]**, …, **b[K]**

then the *Farey Sum* of order **N** is the sum of **b[i]** / **b[i+1]** from **i = 1** to **K −1**.

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

1/6 + 6/5 + 5/4 + 4/3 + 3/5 + 5/2 + 2/5 + 5/3 + 3/4 + 4/5 + 5/6 + 6/1 = 35/2

Write a program to compute the *Farey Sum of order N* (input).

Input

The first line of input contains a single integer **P**, ($1 \leq P \leq 10000$), 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 Sum* that is to be computed.

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 *Farey Sum* as a decimal fraction in lowest terms. If the denominator is **1**, print only the numerator.

Sample Input	Sample Output
4	1 35/2
1 6	2 215/2
2 15	3 2999/2
3 57	4 91180457/2
4 9999	