ACM-ICPC Live Archive

5801 The Rascal Triangle

The *Rascal Triangle* definition is similar to that of the `Pascal Triangle`. The rows are numbered from the top starting with 0. Each row n contains $n+1$ numbers indexed from 0 to n. Using $R(n,m)$ to indicate the index m item in the index n row:

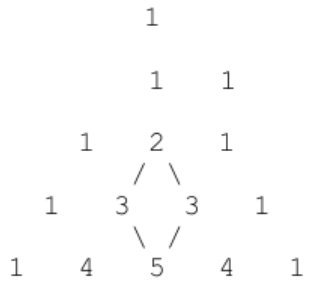
$$R(n,m) = 0 \text{ for } n < 0 \text{ OR } m < 0 \text{ OR } m > n$$

The first and last numbers in each row (which are the same in the top row) are 1:

$$R(n,0) = R(n,n) = 1$$

The interior values are determined by $(UpLeftEntry * UpRightEntry + 1)/UpEntry$ (see the parallelogram in the array below):

$$R(n+1,m+1) = (R(n,m) * R(n,m+1) + 1)/R(n-1,m)$$



Write a program which computes $R(n,m)$ the m-th element of the n-th row of the *Rascal Triangle*.

Input

The first line of input contains a single integer P, $(1 \leq P \leq 1000)$, which is the number of data sets that follow. Each data set is a single line of input consisting of 3 spaces separated decimal integers. The first integer is data set number, N. The second integer is row number n, and the third integer is the index m within the row of the entry for which you are to find $R(n,m)$ the *Rascal Triangle* entry $(0 \leq m \leq n \leq 50000)$.

Output

For each data set there is one line of output. It contains the data set number, N, followed by a single space which is then followed by the *Rascal Triangle* entry $R(n,m)$ accurate to the nearest integer value.

Sample Input

```
5
1 4 0
2 4 2
3 45678 12345
4 12345 9876
5 34567 11398
```

Sample Output

```
1 1
2 5
3 411495886
4 24383845
5 264080263
```