

5807 Maximum in the Cycle of 1

If P is a permutation of the integers $1, \dots, n$, the *maximum in the cycle of 1* is the maximum of the values $P(1)$, $P(P(1))$, $P(P(P(1)))$, etc. For example, if P is the permutation:

```
| 1 2 3 4 5 6 7 8 |  
| 3 2 5 4 1 7 8 6 |
```

we have:

$$P(1) = 3, \quad P(P(1)) = P(3) = 5 \text{ and } P(P(P(1))) = P(5) = 1$$

so the maximum in the cycle of 1 is 5.

For this problem, you will write a program which takes as input integers n , ($n > 0$) and k ($1 \leq k \leq n$), and returns the number of permutations of the integers $1, \dots, n$, for which the maximum in the cycle of 1 is k .

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 that contains the three space separated decimal integer values. The first value is the data set number, N . The second value is the size of the permutation, n where ($1 \leq n \leq 20$), and the third value is the desired maximum in the cycle of 1, k where ($1 \leq k \leq n$).

Output

For each data set there is one line of output. It contains the data set number (N) followed by a single space, followed by a double precision floating point whole value which is the number of permutations of the integers $1, \dots, n$, for which the maximum in the cycle of 1 is k .

Sample Input

```
4  
1 4 1  
2 7 3  
3 10 5  
4 20 7
```

Sample Output

```
1 6  
2 168  
3 86400  
4 11585247657984000
```