John has been given a segment of lenght N, however he needs a polygon. In order to create a polygon he has cut given segment K times at random positions (uniformly distributed cuts). Now he has $K+1$ much shorter segments. What is the probability that he can assemble a polygon using all new segments?

Input

The number of tests T ($T \leq 1000$) is given on the first line. T lines follow, each of them contains two integers N K ($1 \leq N \leq 10^6$; $1 \leq K \leq 50$) described above.

Output

For each test case output a single line '`Case #`T`:` F'. Where T is the test case number (starting from 1) and F is the result as simple fraction in form of N/D. Please refer to the sample output for clarity.

Sample Input

```
2
1 1
2 2
```

Sample Output

```
Case #1: 0/1
Case #2: 1/4
```