Soft Skills

Lea wants to get a better job and is therefore looking for some soft skill courses as she knows that every recruiter loves to read the courses' inspiring titles on a CV. She found the list of courses at IAH, the Institute for Amazing Headlines, which will look great on her CV. The people at IAH also award certificates if the participants take enough of their courses. There is not much information about the contents of the courses, but this is not what Lea is looking for, anyway.

The number of courses at IAH is overwhelming, so Lea begins to wonder how many possibilities there are to combine them for the certificate. For the certificate, only the number of courses matters. It is not important whether Lea participates in "Handling Extremely Complex Systems" or "How to Get Promoted During the Coffee Break", for instance. As the number of possible combinations for the certificate may be very big, Lea is already satisfied to find the number modulo $223092870 = 2 \cdot 3 \cdot 5 \cdot 7 \cdot 11 \cdot 13 \cdot 17 \cdot 19 \cdot 23$.

Input

The first line of the input contains an integer t. t test cases follow.

Each test case consists of a single line containing two integers n, the number of courses available at IAH, and m, the number of courses needed for the certificate.

Output

For each test case, output one line containing "Case #i: x" where i is its number, starting at 1, and x is the number of possibilities to pick exactly m courses modulo 223092870. Each line of the output should end with a line break.

Constraints

- $1 \leq t \leq 20$
- $1 \leq n \leq 10^7$
- $1 \leq m \leq n$

Sample Input 1

```
3
5 2
7 4
100 12
```

Sample Output 1

```
Case #1: 10
Case #2: 35
Case #3: 96633810
```

Sample Input 2

```
5
7 6
11 6
6 5
10 4
11 8
```

Sample Output 2

```
Case #1: 7
Case #2: 462
Case #3: 6
Case #4: 210
Case #5: 165
```