Problem K
N Rook Problem

Time limit: 6 seconds
Memory limit: 512 megabytes

Problem Description

Queen is so overrated in chess. Rooks are the new sexy! Especially when you manage to get a bunch of rooks on the board at once. Given a chess board of size n by n, please try to place n rooks on the board so that there are 1 rook on each column and 1 rook on each row. Furthermore, there might be other pieces on the board blocking certain positions so that you cannot put a rook on the same position. How many ways are there to achieve this?

Input Format

On the first line there is a single integer T ($T \leq 50$) indicating the number of test cases. The first line of each test case contains two integers n ($1 \leq n \leq 20$) and m ($0 \leq m \leq n^2$) indicating the size of the board and the number of blocking pieces, respectively. The following m lines contain two integers x and y ($1 \leq x, y \leq n$), representing the position that is blocked by other pieces.

Output Format

For each test case, output the number of ways to place the rooks that satisfies the requirement. There should be a line break at the end of the output of each test case.

Sample Input

```
2
2 0
2 1
1 1
```

Sample Output

```
2
1
```