

## Problem ?: Tiki-Taka

Football, like any other sport, is continually evolving, and there have been teams which have developed truly marvelous playing styles throughout the years. Among the most cited examples, you could point to the national football teams of Brazil, Netherlands and Argentina during the 70s, as well as to many European clubs that have won glorious titles in recent decades, such as Dutch club Ajax, Milan of Italy, Barcelona of Spain and Germany's Bayern München.

One of the most popular styles used in modern football is the so-called *tiki-taka*, which generally refers to a particular style in which short passes and movements are critical, and the overarching goal is to maintain possession of the ball, wearing out the opposing team and disrupting their defensive lines.

The football manager (FM) of the national team for the country of Nlogonia—a beautiful place where football is gaining popularity—is planning a tiki-taka training session with a group of his players. He knows that, within the framework of this simple style, there is an ample range of play combinations, and he wants to explore those possibilities. For this purpose, he starts by giving out instructions to his players, indicating the possible *passing lines*. A passing line is defined by two players; one who passes the ball, and one who receives the pass. The FM expressly forbids passing the ball from a player A to another player B unless he has defined a passing line from A to B.

The FM wants to prepare a special play with N passes, and he chooses two players, which will be denoted X and Y, to be the starting and ending points of the play—that is, X must make the first pass, and Y has to receive the last pass. Now, the FM wants to know the number of different ways in which such play can be executed, performing N passes, starting with X and ending in Y. Nlogonia's FM is so busy these days with the team that he asks your help to create a program that calculates this value for him.

### Input

Input starts with a positive integer T ( $T \leq 20$ ), denoting the number of test cases.

Every test case starts with a blank line. The next line contains two integers: P, L, representing the number of players to be part of the training session, and the number of passing lines defined by the FM, respectively.

The next L lines describe the passing lines. Each of these lines contain two integers: A, B, indicating that player A may pass the ball to player B ( $A \neq B$ ). Take notice that this does not necessarily imply that B is allowed to pass the ball to A. No passing line will appear more than once in the input.

The next line contains an integer Q, the number of queries made by the FM. The next Q lines describe the queries. Each of these lines contain three integers: X, Y, N, in that order.

$$2 \leq P \leq 11 ; 1 \leq Q \leq 30 ; 1 \leq N \leq 10^{15} ; 1 \leq A, B, X, Y \leq P$$

### Output

For each test case, your program must print a line with the message Case i : , replacing i with the case number. Then you must print Q lines, with the answers to the queries, in the same order as they were presented in the input.

The answer to each query must be the total number of different ways in which the players can pass the ball N times, starting with X and ending in Y. Since this number can be very large, print this answer modulo 1000000007.

Sample Input	Output for Sample Input
2  4 6 1 2 2 1 2 3 2 4 3 2 3 4 4 1 4 2 1 4 4 2 4 10 4 1 1  3 4 1 2 2 1 2 3 3 2 1 1 3 30	Case 1: 1 2 16 0 Case 2: 16384

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