J	**Prime Distance** **Input: Standard Input** **Output: Standard Output**

You have an empty **1 * n** grid. The cells of the grid are indexed from **1** to **n** from left to right. You have to put **m** identical coins in the grid. A cell can contain zero or more coins. If you pick a pair of cells each containing at least one coin, the distance between the cells must be a prime number.

How many ways you can place the coins? As the number can be large, find answer modulo **10^9+7**. Two ways are different if there is at least one cell which contains different number of coins.

The distance between two cells indexed **i, j** is |**i - j**|.

Input

The first line contains **T (1 ≤ T ≤ 2000)** (the number of test cases). Each of the next **T** lines contains two integers **n (1 ≤ n ≤ 10^5)** and **m(1 ≤ m ≤ 10^5)** separated by a single space.

Output

For each case, print the case number and the answer modulo **10^9 + 7**.

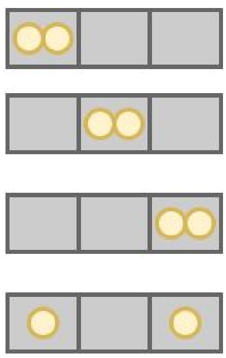
Sample Input

```
2
3 2
6 3
```

Output for Sample Input

```
Case 1: 4
Case 2: 24
```

In the first case, you can put both coins in cell 1, 2 or 3. Or you can put a coin in cell 1 and put another coin in cell 3.



Note that in the 2nd case putting 3 coins in cell 1, 3, 5, is not valid, because the distance between cell 5 and cell 1 is a non-prime.