

# Coloring Grid



Calculate the number of ways to color an  $N * M$  grid using  $K$  colors. Adjacent squares in the grid should have different colors. Squares are considered adjacent if they share an edge.

### Input Format

The first line contains an integer  $T$  denoting the number of test-cases. The next  $T$  lines contains integers  $N$ ,  $M$  and  $K$  separated by a single space.

### Output Format

Output  $T$  lines, one for each test case containing the number of ways modulo  $10^9+7$ .

### Constraints

- $1 \leq T \leq 10^5$
- $1 \leq N, M \leq 8$
- $1 \leq K \leq 10^9$

### Sample Input

```
3
3 3 2
3 4 3
1 1 1
```

### Sample Output

```
2
1122
1
```

### Explanation

For the first case, there are two ways to color the grid. The colorings are in a chessboard pattern with either color at the top right square.

**Timelimits** Timelimits for this challenge can be seen [here](#)