Tiling a WxH Grid With Dominoes
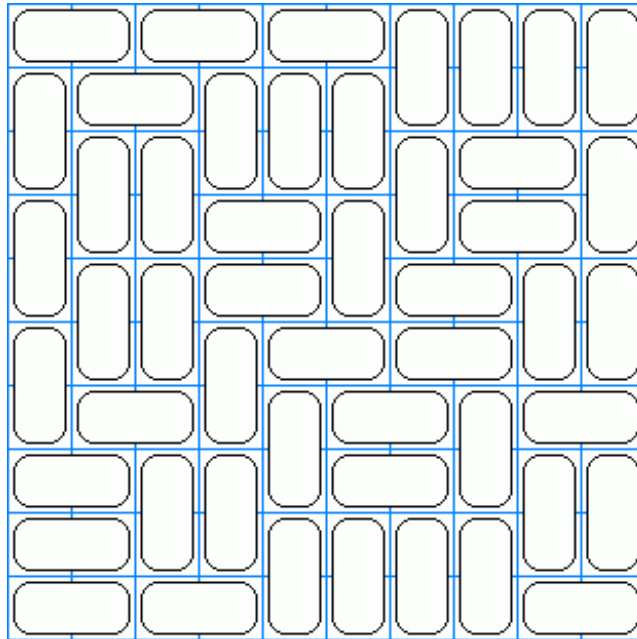
Write a program that takes as input the width, **W** and height **H** of the grid and outputs the number of different ways to tile a W-by-H grid with (2x1) dominoes.

Score is the length of your source.

Input

The first line is an integer **T**(1 ≤ **T** ≤ 276), denoting the number of test cases. Then, **T** test cases follow.

For each test case, there are two integers **W** and **H**(0 ≤ **W**+**H** ≤ 22) written in one line, separated by space.

Output

For each test case, output the number of different ways to tile a W-by-H grid with (2x1) dominoes.

Example

Input:
6

1 2

2 3

3 4

4 5

5 6

6 7

Output:

1

3

11

95

1183

31529

Information

All outputs will fit on 64-bit signed integer and less than 10^{15}.

You may try M3TILE, M4TILE, or M5TILE first.

See also: Another problem added by Tjandra Satria Gunawan