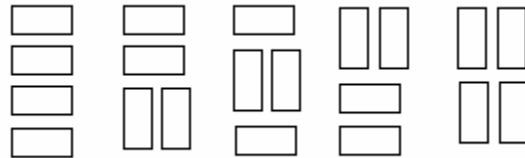




# 2014 SCUSA Scripting Contest

## H • Tiling a Grid With Dominoes

We wish to tile a grid 4 units high and  $N$  units long with rectangles (dominoes) 2 units by one unit (in either orientation). For example, the figure shows the five different ways that a grid 4 units high and 2 units wide may be tiled.



Write a program that takes as input the width,  $W$ , of the grid and outputs the number of different ways to tile a 4-by- $W$  grid.

### Input

The first line of input contains a single integer  $N$ , ( $1 \leq N \leq 1000$ ) which is the number of datasets that follow.

Each dataset contains a single decimal integer, the width,  $W$ , of the grid for this problem instance.

### Output

For each problem instance, there is one line of output: The problem instance number as a decimal integer (start counting at one), a single space and the number of tilings of a 4-by- $W$  grid. The values of  $W$  will be chosen so the count will fit in a 32-bit integer.

Sample Input	Sample Output
3	1 5
2	2 11
3	3 781
7	