Problem K – Keep the order

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Sheldon is a theoretical physicist and also a person extremely obsessed with the order of things. During his last trip to China, Sheldon was very surprised to see a military parade. During the parade, Sheldon observed the fully synchronized movements of the N soldiers who participated in the march. After admiring the show for a few minutes, Sheldon realized that the formation of the N soldiers did not follow an order that will respect the height of the participants. Thus he began to imagine all the soldiers formed in a straight line. Subsequently, the following question arose in his mind: if each of them has different heights, then in how many ways could he order the soldiers in a straight line from left to right, so that no matter which three are chosen the order will never be short, tall, medium from left to right?

Input

The first line contains the number of test cases T ($1 \leq T \leq 100$). Each of the next T lines contains an integer N ($1 \leq N \leq 5 * 10^3$) the number of soldiers in the parade.

Output

For each test case print in a line the number of ways the N soldiers of different heights can stand in a line so that no matter which three are chosen the order will never be short, tall, medium from left to right.

Sample input 1	**Sample output 1**
2 2 3	2 5