

Problem H

Arrange Some Marbles

Input: Standard Input
Output: Standard Output

you are given some marbles of n different color. You have to arrange these marbles in a line. The marbles adjacent with same color form a group. In each group there can be 1 to 3 marble. Adjacent group should have different color and size. The first and last group also should have different color and size. You are given the number of each of these n marbles. You have count the number of ways you can arrange them in a line maintaining the above constraints. For example you have 4 red marbles and 4 green marbles. You can arrange them in the following 8 way - GGRRRGR, GGRGGRR, GGRRRRG, GRRGGRR, RGGRRRG, RRGGRRG, RRGGRRG, RRRGGRR.

Input

Input contains multiple number of test cases. The first line contain the number of test cases t ($t < 3000$). Each of the next line contains one test case. Each test case starts with n ($1 \leq n \leq 4$) the number of different color. Next contains n integers. The i 'th integer denotes the number of marble of color i . The number of marbles of any color is within the range 0..7 (inclusive). The color of the marbles are numbered from 1 to n .

Output

For each test case output contains one integer in one line denoting the number of ways you can arrange the marbles.

Sample Input

```
6
2 3 3
2 4 4
2 6 6
3 3 4 5
3 4 5 6
4 2 3 4 5
```

Output for Sample Input

```
0
8
12
174
1234
1440
```

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