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## Balanced scales

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Given  $n$  weights, we have to place all of them on a scale, one after another, in such a way that the right pan is never heavier than the left pan. Please compute the number of ways of doing this.

For example, for  $n = 3$  and weights  $\{1, 2, 4\}$ , possible solutions are

$$(1l, 2l, 4l), (2l, 1l, 4l), (2l, 4l, 1r), (2l, 1r, 4l), (4l, 1r, 2r), \dots$$

where  $1l$  means that the weight 1 is placed on the left pan and  $2r$  means that the weight 2 is placed on the right pan. We remark, as it can be seen in the example, that the order in which we place the weights does matter. Hence,  $(2l, 4l, 1r)$  and  $(2l, 1r, 4l)$  are different solutions.

### Input

Input consists of several cases, each with the number of weights  $n$  followed by  $n$  different weights, all between 1 and  $10^6$ . Assume  $1 \leq n \leq 8$ .

### Output

For every case, print the number of correct ways of placing the weights on the scale. This number will never be larger than  $10^7$ .

#### Sample input

```
1 20
3 1 2 4
3 6 10 4
8 1 2 3 4 5 6 7 8
```

#### Sample output

```
1
15
17
2130717
```

### Problem information

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