
Balanced scales**V45017_en**

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

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

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, $(2\ell, 4\ell, 1r)$ and $(2\ell, 1r, 4\ell)$ 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

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

Sample output 1

```
1
15
17
2130717
```

Problem information

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