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## Optimal separation

P64493\_en

Examen extraordinari d'Algorísmia, FME (2012-06-29)

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Given  $n$  natural numbers, find how to separate them into two sets so that the absolute value of the difference between the sums of the elements of the two sets is minimized.

### Input

Input consists of several cases, each with  $n$  followed by  $n$  natural numbers between 1 and  $10^6$ . Assume  $1 \leq n \leq 23$ .

### Output

For every case, print the minimum possible difference.

#### Sample input

```
5 18 10 19 14 3
4 1000 10 10 10
1 20
7 1 2 4 8 16 32 64
```

#### Sample output

```
0
970
20
1
```

### Problem information

Author : Salvador Roura

Translator : Salvador Roura

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