

H P C O D E W A R S X V I I

You walk over to the next event where you see several vines of beans have been planted. The event coordinators (oddly dressed as arena gardeners) offer you a curious trade:

Problem 14
Buying Beans
8 points

You may pick any number of beans you like and place them on one side of a balance scale. The gardeners will then place weights on the other side of the scale. If they CANNOT make the scale balance, they will award you one arena-coin for each of your beans. But you will only be awarded your points if you earn the maximum number of coins.

The gardeners use a different set of base weights for each weighing, so you will always have to work out your best deal. Each bean weighs one gram, and the weights are also in units of grams.

For example, if the gardeners have a supply of weights with values of 5 and 7 grams, they cannot balance 1, 2, 3, 4, 6, 8, 9, 11, 13, 16. 18 or 19 beans. And the largest number they cannot balance is 23 beans.

If they next use weights of 6, 7, and 11 grams, the largest number they cannot balance is 16 beans.

Write a program to determine the largest number of beans which cannot be balanced for a given set of weights.

Input

The first number on each line will be an integer N (2, 3, or 4), representing the number of different weights the gardener uses. The rest of the line holds N different integers, the value in grams of each weight. The maximum base weight is 100 grams. The last line holds a single 0.

Example 1:

```
2 7 5
3 6 7 11
0
```

Example 2:

```
4 11 12 13 14
2 99 2
2 99 100
0
```

Output

Print the maximum number of beans which cannot be balanced using any combination of multiples of the N weights. [In cases when all the weights share a common factor F, the maximum is infinite because the weights cannot combine to any value equal to 1 plus a multiple of F. You may assume the input will never include these cases.]

Example 1:

```
23
16
```

Example 2:

```
43
97
9701
```

Note: To help limit any programming loops you might use, the maximum number of beans will never be greater than 10000. It will usually be much smaller.

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