Assignment on Sets

Q1.

Ms. Gabriel Williams is a botany professor at District College. One day, she asked her student Mickey to compute the average of all the plants with distinct heights in her greenhouse.

Formula used:

$$Average = \frac{Sum\ of\ Distinct\ Heights}{Total\ Number\ of\ Distinct\ Heights}$$

Input Format

The first line contains the integer, N, the total number of plants.

The second line contains the N space separated heights of the plants.

Constraints

$0 < N \leq 100$

Output Format

Output the average height value on a single line.

Sample Input

```
10
161 182 161 154 176 170 167 171 170 174
```

Sample Output

```
169.375
```

Explanation

Here, set($[154, 161, 167, 170, 171, 174, 176, 182]$) is the set containing the distinct heights. Using the sum() and len() functions, we can compute the average.

$$Average = \frac{1355}{8} = 169.375$$

Q2.

The students of District College have subscriptions to *English* and *French* newspapers. Some students have subscribed only to *English*, some have subscribed only to *French*, and some have subscribed to both newspapers.

You are given two sets of student roll numbers. One set has subscribed to the *English* newspaper, one set has subscribed to the *French* newspaper. Your task is to find the total number of students who have subscribed to *both* newspapers.

Input Format

The first line contains , the number of students who have subscribed to the *English* newspaper.
The second line contains space separated roll numbers of those students.
The third line contains , the number of students who have subscribed to the *French* newspaper.
The fourth line contains space separated roll numbers of those students.

Constraints

Output Format

Output the total number of students who have subscriptions to **both** *English* and *French* newspapers.

Sample Input

9

1 2 3 4 5 6 7 8 9

9

10 1 2 3 11 21 55 6 8

Sample Output

5

Explanation

The roll numbers of students who have *both* subscriptions:
 and .
Hence, the total is students.

Q3.

TASK

You are given a set and number of other sets. These number of sets have to perform some specific mutation operations on set .

Your task is to execute those operations and print the sum of elements from set .

Input Format

The first line contains the number of elements in set .
The second line contains the space separated list of elements in set .
The third line contains integer , the number of other sets.
The next lines are divided into parts containing two lines each.
The first line of each part contains the space separated entries of the *operation name* and the *length of the other set*.
The second line of each part contains space separated list of elements in the other set.

*len(set(**A**))*
len(otherSets)

Output Format

Output the sum of elements in set .

Sample Input

16

1 2 3 4 5 6 7 8 9 10 11 12 13 14 24 52

4

intersection_update 10

2 3 5 6 8 9 1 4 7 11

update 2

55 66

symmetric_difference_update 5

22 7 35 62 58

difference_update 7

11 22 35 55 58 62 66

Sample Output

38

Explanation

After the first operation, (*intersection_update operation*), we get:
set

After the second operation, (*update operation*), we get:
set

After the third operation, (*symmetric_difference_update operation*), we get:
set

After the fourth operation, (*difference_update operation*), we get:
set

The sum of elements in set after these operations is .