

# Force

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## Description

Give  $n$  real numbers  $q_1, q_2 \dots q_n$ . Define:

$$F_j = \sum_{i=1}^{j-1} \frac{q_i \times q_j}{(i-j)^2} - \sum_{i=j+1}^n \frac{q_i \times q_j}{(i-j)^2}$$

$$E_i = \frac{F_i}{q_i}$$

For  $1 \leq i \leq n$ , calculate the value of  $E_i$ .

## Input Format

The first line contains one integer  $n$ .

The next  $n$  lines, the  $i$ th line contains one real number  $q_i$ .

## Output Format

Output  $n$  lines. The  $i$ th line is the result  $E_i$ .

Your output is accepted if it differs from the standard answer by less than  $10^{-2}$ .

## Sample

### Sample Input

```
5
4006373.885184
15375036.435759
1717456.469144
8514941.004912
1410681.345880
```

### Sample Output

-16838672.693

3439.793

7509018.566

4595686.886

10903040.872

## Hint

For 100% data,  $1 \leq n \leq 10^5$ ,  $0 < q_i < 10^9$ .