7178 Irrational Roots

Let n be a natural number, $n \leq 8$. Consider the following equation:

$$x^n + c_{n-1}x^{n-1} + c_{n-2}x^{n-2} + \ldots + c_1 x + c_0 = 0$$

where c_{n-1}, c_{n-2}, ..., c_1, c_0 are integers and $c_0 \neq 0$.

It is known that all the n roots of the equation are real numbers. We consider that each root r of the equation satisfies the condition: $-10 \leq r \leq 10$. Also, there might be roots that appear more than once.

Find the number of irrational roots of the equation (an irrational root is a root that is an irrational number).

Input

The input file contains several test cases, each of them as described below.

The first line of the input file contains the value of n. The second line contains the values of c_{n-1}, c_{n-2}, ..., c_1, c_0: each two consecutive values are separated by a single space.

Output

For each test case, print one number — number of irrational roots of the equation.

Sample Input

```
6
12 -12 -454 -373 3754 1680
```

Sample Output

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2
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