

Factorization

Input File: factor.txt

Factoring is always a hassle. As a result, you have decided to implement your own program that can find all the real zeros of a linear or quadratic function. This program takes input in the form $c_1x^{p_1} + c_2x^{p_2} + \dots$, where c and p are integers and p is between 0 and 2. If any real zeros exist, your job is to print them out.

Input:

The first line contains an integer N . The following N lines each contain an expression in the form shown above.

Output:

Output the zeros for each test case in sorted order. For integer values, do not include trailing zeros, and for decimal values, round down to three decimal places if any are longer than that. If none exist, print None.

Example Input:

```
3
1x^1 + 3x^0 - 2x^1
4x^2 + 9x^1 + 5x^0
19x^2 - 6x^0 - 11x^2 - 8x^2
```

Example Output:

```
3
-1.25 -1
None
```