A Polynomial equation of degree n is defined as follows :

$$C_0 + \sum_{i=1}^{n} (C_i * x^i) = 0.$$

A polynomial equation of n degree can have at most n distinct roots which may be both real or complex. Such as a quadratic equation :

$$x^2 - 5x + 6 = 0$$

has two roots 2 and 3. In this problem you have to generate such a polynomial equation whose roots are already given.

Input

The input will start with a positive integer N indicating the number of roots of the polynomial equation. The next line will contain the roots each of which is an integer. N will not exceed 50.

Input is terminated by EOF.

Output

You have to show the polynomial using x as a variable. If coefficient of any term x^i $(i > 0)$ becomes zero then you need not show that term. In case of coeffecient being 1 only print $x\hat{}i$ $(i > 0)$. Again if the constant term is zero always use '`+ 0`'. See sample output for more clarification.

You can be sure that no coeffecient will exceed 10^{15}.

Sample Input

```
2
2 3
2
-2 -3
3
0 1 -1
```

Sample Output

```
x^2 - 5x + 6 = 0
x^2 + 5x + 6 = 0
x^3 - x + 0 = 0
```