

Polynomial Equations

You are given the polynomial $F(x)$ as the sum of monomials. Each monomial has the form:

$[coefficient]x^{degree}$ or $[coefficient]$,

where *coefficient* and *degree* are integers such that $-30000 \leq coefficient \leq 30000$, $0 \leq degree \leq 6$. The parameters given in $[]$ can be skipped.

In this problem you have to find all solutions of the equation: $F(x)=0$.

Input

t – the number of test cases, then t test cases follow. [$t \leq 100$]

Each line contains one polynomial $F(x)$ given as string s in the form described above.

The length of string s is not more than 300 characters.

Output

For each test case output all solutions (including repeated) of the given equation in non-decreasing order. All solutions lie within the interval $[-100.0; 100.0]$. Each solution must be given with an error of not more than 0.01. It's guaranteed that all solutions are real, not complex.

Example

Input:

2

$x^4-6x^3+11x^2-6x$

$-x^2+2x-1$

Output:

0.00 1.00 2.00 3.00

1.00 1.00