Binary search of a function’s sign change

Cost: 6 | Solved: 113

Memory limit: 64 MBs

Time limit: 1 s

Input: input.txt

Output: output.txt

Task:

You are given a cubic equation $ax^3 + bx^2 + cx + d = 0$ $(a \neq 0)$. It is known that this equation has the only root. Let the function $F(x) = ax3 + bx2 + cx + d$ be monotonic.

Find the root of the equation.

Input:

Four integers ***a***, ***b***, ***c***, ***d*** (-1000 ≤ ***a***, ***b***, ***c***, ***d*** ≤10000).

Output:

The root of the equation with an accuracy of at least 6 characters after the decimal point.

Example:

Input	Output
1 -3 3 -1	1.000000
-1 -6 -12 -7	-1.000000