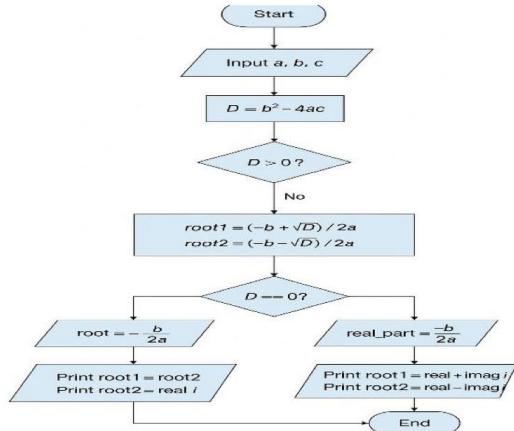


PROBLEM 2.1.1

Flowchart



Algorithm

Start

Input: Read three integers (a, b, and c) from a single line of input.

Calculate Discriminant: Compute D using the formula: $D = b^2 - 4ac$

- **If $D > 0$ (Real and Different):**
 - Calculate $\text{root1} = \frac{-b + \sqrt{D}}{2a}$
 - Calculate $\text{root2} = \frac{-b - \sqrt{D}}{2a}$
 - Print both roots.
- **If $D = 0$ (Real and Same):**
 - Calculate the single root: $\text{root} = \frac{-b}{2a}$
 - Print that $\text{root1} = \text{root2}$ equals this value.
- **If $D < 0$ (Imaginary/Complex):**
 - Calculate the **Real Part**: $\frac{-b}{2a}$
 - Calculate the **Imaginary Part**: $\frac{\sqrt{-D}}{2a}$
 - Print the roots in the complex format (e.g., $\text{real} + \text{imag}i$).

Formatting: Ensure all printed values are formatted to exactly **two decimal places**.

Stop

CODE TANTRA Home

2.1. Roots of a Quadratic Equation

Write a program to find the roots of a quadratic equation, given its coefficients a, b, and c. Use the quadratic formula: $\frac{(-b \pm \sqrt{b^2 - 4ac})}{2a}$

The discriminant $D = b^2 - 4ac$ determines the nature of the roots:

- If $D > 0$: Roots are real and different
- If $D = 0$: Roots are real and the same
- If $D < 0$: Roots are imaginary

Input Format:

- Three space-separated integers representing the coefficients a, b, and c, respectively.

Output Format:

- If roots are real and different, print:

```
root1 = <Root1>
```

```
import math
a, b, c = map(int, input().split())
D = b * b - 4 * a * c
if D > 0:
    root1 = (-b + math.sqrt(D)) / (2 * a)
    root2 = (-b - math.sqrt(D)) / (2 * a)
    print(root1)
    print(root2)
else:
    real_part = -b / 2 * a
    print(real_part)
    print(real_part + math.sqrt(-D) / 2 * a)
    print(real_part - math.sqrt(-D) / 2 * a)
```

quadratic... |

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