Lab Assignment 2

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CPSC1150 - Section 1

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Exercise Title: Quadratic Formula Lab

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**Program Quadratic Formula**

File Name: Lab2.java

Purpose: To solve the quadratic formula.

Input: doubles a, b, and c, for the equation ax^2 + bx + c =0.

Output: The two roots x1 and x2. Some cases may have just one root, x1, or even no roots.

Technical Information:

Compiler: Java SDK 1.7

Computer: Intel Celeron 2955U 1.4GHz, 2.00 GB of RAM

Language: Java

Source Code:

Attached

Program Logic (Pseudocode)

START

1. a, b, c = doubles (hardcode)
2. x1, x2 = 0
3. if a = 0
   * x1 = -c / b
4. else if b^2 < 4ac
   * No roots (square of a negative number)
5. else
   * x1 = (-b + root(b^2 - 4ac)) / 2a
   * x2 = (-b - root(b^2 - 4ac)) / 2a

END

**Test Cases:**

Finding the root of ax^2 + bx + c = 0

Test Case 1:

Input: a = 1, b = 5, c = 4

Returns: x1 = -1, x2 = -2

Test Case 2:

Input: a = 0, b = 12, c = 7

Returns: -0.58333…

Test Case 3:

Input: a = 5, b = 4, c = 7

Returns: No Real Answers

Test Case 4:

Input: a = 5, b = 0, c = -3

Returns: x1 = 0.7746, x2 = -0.7746

Test Case 5:

Input: a = 1, b = 4, c = 4

Returns: x1 = -2. x2 = -2