PACE-Monmouth Computer Science

Objective:

1. Identify all **Inputs** and **Outputs** for the problem presented below
2. Identify any **constants** that might be required
3. Identify any **key formulas** required
4. Identify any "**placeholders**" needed to store temporary computations
5. Write a set of **pseudo-code** statements that will solve the problem

Problem Statement: Write a program to calculate the factors of a quadratic equation, given the coefficients (a, b, and c). Be sure to handle cases where the denominator is zero and the value under the radical is negative.

Hint A: you need to use nested if-then-else.
Hint B: use "problem decomposition" techniques to break this problem into smaller pieces
Hint C: you must use the java square root method - **Math.sqrt**(*variableName*)

Minimally, use the following **test cases** when you are done:

Test Case #1
a = 1, b = -6, c = -16
Solution Set: {8, -2}

Test Case #2
a = 1, b = -1, c = 0
Solution Set: {0, 1}

Test Case #3
a = 2, b = -1, c = -1
Solution Set: {1, -0.5}

Test Case #4
a = 1, b = 0, c = 0
Solution Set: {0}

Test Case #5
a = 0, b = 16, c = 5
Solution Set: undefined

Test Case #6
a = 1, b = 2, c = 2
Solution Set: imaginary