

Instructions:

1. Open your PrelimProject and create a package named **QuadPackage**.
2. Solve the problem given below into your QuadPackage.

Problem:

Create a class named **Quadratic** with three instance variables that are used to hold the coefficients of a quadratic equation in the form  $ax^2 + bx + c = 0$  where **a**, **b**, and **c** are the integer coefficients.

Provide the following:

- **Setter** and **getter** methods for each instance variable
- An **evaluate** method that evaluates the quadratic equation at point x. It returns an integer value
- A **getDiscriminant** method that returns the value of the discriminant
- An **isImaginary** method that determines if the roots of the equation are imaginary or not
- A **getFirstRoot** method that returns the first root of the equation
- A **getSecondRoot** method that returns the second root of the equation
- An **isPerfectSquare** method that determines whether or not the equation is a perfect square
- An **add** method that adds two quadratic equations. It returns a quadratic object.
- A **displayQuadratic** method that displays the quadratic equation (e.g.  $4x^2 + 2x + 5 = 0$ ).

Create a tester program that instantiates Quadratic objects and invokes the methods.