

# Solving Quadratic Equation in standard form:

Design and write a **Quadratic class** containing four class methods:

- **plusRoot()**, which returns the root when the plus sign is applied.
- **minusRoot()**, which returns the root when the minus sign is applied.
- **discriminant()**, this method returns the quantity ( $b^2 - 4ac$ ) and is used by **plusRoot()** and **minusRoot()**.
- **isRealRoots()**, this method checks if roots are real or not. **plusRoot()** and **minusRoot()** are called based upon the Boolean value returned by this method.

Goal of this program is to find real roots of the quadratic equation if they exist, in case quadratic equation does not have real roots program should display message stating no real roots. This program starts at the main method by asking user for constants a, b and c and then uses all the other methods to accurately output roots.

Quadratic equation in standard form is:  $y = ax^2 + bx + c$

Discriminant  $D = b^2 - 4ac$

Quadratic Formula: roots =  $\frac{-b \pm \sqrt{D}}{2a}$

QuadraticClass
+ a: double
+ b: double
+ c: double
+ main(String[] args): void
+ plusRoots(): double
+ minusRoots(): double
+discriminant(): double
+ isRealRoots(): boolean