

- 1) Develop a Java program that prints all real solutions to the quadratic equation  $ax^2 + bx + c = 0$ . Real in a, b, c and use the quadratic formula. If discriminant  $b^2 - 4ac < 0$ , display a message stating that there are no real solutions.

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A: import java.util.Scanner;

public class Quad-solver {

    public static void main (String[] args) {
        Scanner sx = new Scanner (System.in);
        System.out.println ("Enter a, b, c values");
        double a = sx.nextDouble();
        double b = sx.nextDouble();
        double c = sx.nextDouble();

        double discriminant = (b*b) - (4*a*c);

        if (discriminant > 0) {
            double x1 = (-b + Math.sqrt(discriminant)) / (2*a);
            double x2 = (-b - Math.sqrt(discriminant)) / (2*a);
            System.out.println ("The Eqn has real & distinct roots");
            System.out.println ("Root 1 " + x1 + " Root 2 " + x2);
        }

        else if (discriminant == 0) {
            double x = (-b) / (2*a);
            System.out.println ("Real & equal roots i.e " + x);
        }

        else {
            System.out.println ("The Equation has no real solution.");
        }

        sx.close();
    }
}
```



O/p

Case 1: Enter a, b, c values

1 -3 2

The Equation has real & distinct roots

Root 1: 2.0

Root 2: 1.0

Case 2:

Enter a, b, c values

1 -2 1

Real & equal roots i.e 1.0

Case 3:

Enter a, b, c values

1 2 5

The Equation has no real solution.

*[Signature]*  
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