

**Q. Develop java program to print the roots and nature of the roots of quadratic equation**

```
import java.util.Scanner;
public class Roots
{
    public static void main(String args[])
    {
        int a,b,c;
        double root1,root2,discriminate;
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter value for a : ");
        a = sc.nextInt();
        System.out.print("Enter value for b : ");
        b = sc.nextInt();
        System.out.print("Enter value for c : ");
        c = sc.nextInt();
        discriminate = b*b-4*a*c;
        if(discriminate > 0)
        {
            System.out.println("Roots are real and distinct");
            root1 = (-b + Math.sqrt(discriminate)) / (2*a);
            root2 = (-b - Math.sqrt(discriminate)) / (2*a);
            System.out.println("Root1 = "+root1+" Root2 = "+root2);
        }
        else if(discriminate == 0)
        {
            System.out.println("Roots are real and equal");
            root1 = -b / (2*a);
            System.out.println("Root = "+root1);
        }
        else
        {
            System.out.println("Roots are Imaginary");
            root1 = -b / (2*a);
            System.out.println("Root = "+root1+"+i"+Math.sqrt(-discriminate)/(2*a));
            System.out.println("Root = "+root1+"-i"+Math.sqrt(-discriminate)/(2*a));
        }
    }
}
```

**OUTPUT:**

```
Enter value for a : 1
Enter value for b : 5
Enter value for c : 6
Roots are real and distinct
Root1 = -2.0 Root2 = -3.0
```

**Q. Develop a java program to display the default values of all primitive data types**

```
public class DefaultValues
{
    byte b;
    short s;
    int i;
    long l;
    float f;
    double d;
    char c;
    boolean bl;

    public static void main(String[] args)
    {
        DefaultValues ob = new DefaultValues();
        System.out.println("default value of byte is "+ob.b);
        System.out.println("default value of short is "+ob.s);
        System.out.println("default value of int is "+ob.i);
        System.out.println("default value of long is "+ob.l);
        System.out.println("default value of float is "+ob.f);
        System.out.println("default value of double is "+ob.d);
        System.out.println("default value of char is "+ob.c);
        System.out.println("default value of boolean is "+ob.bl);
    }
}
```

**OUTPUT:**

```
default value of byte is 0
default value of short is 0
default value of int is 0
default value of long is 0
default value of float is 0.0
default value of double is 0.0
default value of char is
```