

WRITE A PROGRAM TO SOLVE THE QUADRATIC EQUATION

```
import java.io.*;
import java.util.*;
import java.lang.*;
public class quadratic
{
    private static double a;
    private static double b;
    private static double c;
    public static void read()
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the Co-Effcient a");
        a=sc.nextDouble();
        System.out.println("Enter the Co-Effcient b");
        b=sc.nextDouble();
        System.out.println("Enter the Co-Effcient c");
        c=sc.nextDouble();
        System.out.println("THANK YOU FOR ENTERRING THE CO-EFFCIENTS");
    }

    public static void calc()
    {
        read();
        double d=b*b-4*a*c;
        if(d>0)
        {
            System.out.println("ROOTS ARE REAL AND DISTINCT");
            System.out.println("FIRST ROOT IS " + (-b+Math.sqrt(d))/(2*a));
            System.out.println("FIRST ROOT IS " + (-b-Math.sqrt(d))/(2*a));
        }
    }
}
```

```

    }
    else if(d==0)
    {
        System.out.println("Roots are equal");
        System.out.println("ROOTS ARE " + (-b)/(2*a));
    }
    else
    {
        System.out.println("ROOTS ARE IMAGINARY");
        System.out.println("ROOTS ARE " + -b/(2*a) + "+" + "i" + (Math.sqrt(-d))/(2*a));
        System.out.println("ROOTS ARE " + -b/(2*a) + "-" + "i" + (Math.sqrt(-d))/(2*a));
    }

}

public static void main(String[] args)
{
    calc();
}
}

```

OUTPUT:

OUTPUT IS SHARED IN THE NEXT PAGE

```
C:\Users\Shreehari Kulkarni\Desktop\JAVALABPROGRAMS>javac quadratic.java
C:\Users\Shreehari Kulkarni\Desktop\JAVALABPROGRAMS>java quadratic
Enter the Co-Efficient a
1
Enter the Co-Efficient b
-4
Enter the Co-Efficient c
4
THANK YOU FOR ENTERING THE CO-EFFICIENTS
Roots are equal
ROOTS ARE 2.0

C:\Users\Shreehari Kulkarni\Desktop\JAVALABPROGRAMS>javac quadratic.java
C:\Users\Shreehari Kulkarni\Desktop\JAVALABPROGRAMS>java quadratic
Enter the Co-Efficient a
4
Enter the Co-Efficient b
5
Enter the Co-Efficient c
4
THANK YOU FOR ENTERING THE CO-EFFICIENTS
ROOTS ARE IMAGINARY
ROOTS ARE -0.625+10.7886247497997998i
ROOTS ARE -0.625-10.7886247497997998i

C:\Users\Shreehari Kulkarni\Desktop\JAVALABPROGRAMS>javac quadratic.java
C:\Users\Shreehari Kulkarni\Desktop\JAVALABPROGRAMS>java quadratic
Enter the Co-Efficient a
4
Enter the Co-Efficient b
5
Enter the Co-Efficient c
1
THANK YOU FOR ENTERING THE CO-EFFICIENTS
ROOTS ARE REAL AND DISTINCT
FIRST ROOT IS -0.25
FIRST ROOT IS -1.0

C:\Users\Shreehari Kulkarni\Desktop\JAVALABPROGRAMS>
```