

LAB-1

```
import java.util.Scanner;

public class RootsOfQuadraticEquation {

    public static void main(String args[]){

        double root1 = 0, root2 = 0;

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter the value of a ::");

        double a = sc.nextDouble();

        System.out.println("Enter the value of b ::");

        double b = sc.nextDouble();

        System.out.println("Enter the value of c ::");

        double c = sc.nextDouble();

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

        double sqrt = Math.sqrt(determinant);

        if(determinant>0){

            root1 = (-b + sqrt)/(2*a);

            root2 = (-b - sqrt)/(2*a);

            System.out.println("Roots are real and distinct");

            System.out.println("Roots are "+ root1 +" and "+ root2);

        }

        else if(determinant==0){

            root1 = (-b)/(2*a);

            root2=root1;

            System.out.println("Roots are real and equal");

        }

    }

}
```

```

        System.out.println("Roots are :: "+ root1 +" and
"+root2);
    }
    else {
        System.out.println("There are no real roots");
    }
}
}

```

```

Enter the value of a :
1
Enter the value of b :
-2
Enter the value of c :
-8
Roots are real and distinct
Roots are 4.0 and -2.0
|
Enter the value of a :
1
Enter the value of b :
2
Enter the value of c :
1
Roots are real and equal
Roots are :: -1.0 and -1.0
|
Enter the value of a :
5
Enter the value of b :
6
Enter the value of c :
7
There are no real roots
|

```