

Develop a java program that prints all real solutions to the quadratic equation  $ax^2+bx+c = 0$ . Read in  $a, b, c$  and use the quadratic formula. If the discriminate  $b^2-4ac$  is negative, display a message stating that there are no real solutions.

```
import java.util.Scanner;

public class quadratic{

    public static void main(String[] args){

        Scanner sc=new Scanner(System.in);

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

        float a=sc.nextFloat();

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

        float b=sc.nextFloat();

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

        float c=sc.nextFloat();

        float d=b*b-4*a*c;

        if(d<0){

            System.out.println("No real solutions");

        }

        else if(d>0){

            float r1=(float)(-b+Math.sqrt(d))/(2*a);

            float r2=(float)(-b-Math.sqrt(d))/(2*a);

            System.out.println("The values of roots are real and distinct");

            System.out.println("Root 1= "+r1);

            System.out.println("Root 2= "+r2);

        }

        else{
```

```

        float r3=-b/(2*a);

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

        System.out.println("Root: "+r3);

    }

}

}

```

## Output:

```

PS C:\Users\n6787\OneDrive\Desktop\java> cd "c:\Users\n6787\OneDrive\Desktop\java\" ; if ($?) { javac quadratic.java } ; if ($?) { java quadrat
ic }
Enter the value of a:
1
Enter the value of b:
2
Enter the value of c:
1
Roots are real and equal
Root: -1.0
PS C:\Users\n6787\OneDrive\Desktop\java> cd "c:\Users\n6787\OneDrive\Desktop\java\" ; if ($?) { javac quadratic.java } ; if ($?) { java quadrat
ic }
Enter the value of a:
1
Enter the value of b:
5
Enter the value of c:
1
The values of roots are real and distinct
Root 1= -0.20871215
Root 2= -4.791288
PS C:\Users\n6787\OneDrive\Desktop\java> cd "c:\Users\n6787\OneDrive\Desktop\java\" ; if ($?) { javac quadratic.java } ; if ($?) { java quadrat
ic }
Enter the value of a:
2
Enter the value of b:
1
Enter the value of c:
3
No real solutions
PS C:\Users\n6787\OneDrive\Desktop\java>

```