

```
PS C:\Users\Admin\Desktop\1bm22cs177> javac QuadraticMain.java
PS C:\Users\Admin\Desktop\1bm22cs177> java QuadraticMain
Enter the coefficients of a,b,c
1 2 1
Roots are real and equal
Root1 = Root2 = -1.0
PS C:\Users\Admin\Desktop\1bm22cs177> java QuadraticMain
Enter the coefficients of a,b,c
1 1 1
Roots are imaginary
Root1 = 0.0 + i0.8660254037844386
Root1 = 0.0 - i0.8660254037844386
PS C:\Users\Admin\Desktop\1bm22cs177> java QuadraticMain
Enter the coefficients of a,b,c
2 6 2
Roots are real and distinct
Root1 = -0.3819660112501051 Root2 = -2.618033988749895
PS C:\Users\Admin\Desktop\1bm22cs177> java QuadraticMain
Enter the coefficients of a,b,c
0 2 3
Not a quadratic equation
Enter a non zero value for a:
6
Roots are imaginary
Root1 = 0.0 + i0.6871842709362768
Root1 = 0.0 - i0.6871842709362768
PS C:\Users\Admin\Desktop\1bm22cs177> ^S|
```

Quadratic

```
import java.util.Scanner;
class Quadratic {
    int a, b, c;
    double r1, r2, r3;
    void getd()
    { Scanner s = new Scanner(System.in);
      System.out.println("Enter coefficient
        of a, b, c ");
      a = s.nextInt();
      b = s.nextInt();
      c = s.nextInt();
    }
    void compute() {
        while (a == 0) {
            System.out.println("Not a quadratic
              equation, Enter non zero value
              for a:");
            Scanner s = new Scanner(System.in);
            a = s.nextInt();
        }
        d = b*b - 4*a*c;
        if (d == 0) {
            r1 = (-b) / (2*a);
            System.out.println("Roots are real &
              equal");
            System.out.println("Root 1 = Root 2 = " + r1);
        }
    }
}
```



```

else if (d > 0) {
    r1 = ((-b) + (Math.sqrt(d))) / (double)(2*a);
    r2 = ((-b) - (Math.sqrt(d))) / (double)(2*a);
    System.out.println("Roots are real & distinct");
    System.out.println("Root1 = " + r1 + "Root2 = " + r2);
}

```

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else if (d < 0) {
    System.out.println("Roots are imaginary");
    r1 = (-b) / (2*a);
    r2 = Math.sqrt(-d) / (2*a);
    System.out.println("Root1 = " + r1 + " + i" + r2);
    System.out.println("Root2 = " + r1 + " - i" + r2);
}
}
}

```

```

class QuadraticMain {
    public static void main (String args[]) {
        Quadratic q = new Quadratic();
        q.getD();
        q.compute();
    }
}

```

Output

I Enter the coefficients of a, b, c
1 2 1
Roots are real & equal
Root 1 = Root 2 = -1.0

II Enter the coefficients of a, b, c
1 1 1
Roots are imaginary
Root 1 = $0 + i \cdot 0.866025$
Root 2 = $0 - i \cdot 0.866025$

III Enter the coefficients of a, b, c
2 6 2
Roots are real and distinct
Root 1 = -0.38196 Root 2 = -2.6180339

~~IV~~ Enter the coefficients of a, b, c
0 1 2
Not a quadratic equation. Enter
a non zero value for a

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Roots are imaginary

$$\text{Root 1} = 0 + i 0.571304$$

$$\text{Root 2} = 0 - i 0.571304$$