

12/12/23

1. 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 discriminant $b^2 - 4ac < 0$, display a message stating that there are no real sols.

```
import java.util.Scanner;
class Quadratic
```

```
int a, b, c;
double r1, r2, d;
void getd()
```

```
Scanner s = new Scanner(System.in);
System.out.println("Enter the coefficients 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");~~

~~System.out.println("Enter a non-zero value for a");~~

```
Scanner s = new Scanner(
    System.in);
```

3 $a = \text{nextInt}();$
 $d = b * b - 4 * a * c;$
 if ($d == 0$)

$r1 = (-b) / (2 * a);$
 System.out.println("Roots are real and equal");

System.out.println("Root1 = Root2 = " + r1);

else if ($d < 0$)

System.out.println("Roots are imaginary");

$r1 = (-b) / (2 * a);$

$r2 = \text{math.sqrt}(-d) / (2 * a);$

System.out.println("Root1 = " + r1 + " + i" + r2));

System.out.println("Root1 = " + r1 + " - i" + r2);

A
class QuadraticMain

public static void main (String args)

Quadratic q = new Quadratic();

av. getd();

av. compd();

$\frac{b}{2}$

$\frac{\sqrt{b^2 - 4ac}}{2}$

Sanvi Nadige
IBM22C52US

1. enter the coefficients of a, b, c

roots are imaginary

$$\text{root 1} = 0.0 + i0.799305253885453$$

$$\text{root 2} = 0.0 - i0.799305253885453$$

(Ex: 1 + i + 1)

2. enter the coefficients of a, b, c

$$\text{root 1} = -2.0 + i\text{NaN}$$

$$\text{root 2} = -2.0 - i\text{NaN}$$

3. enter the coefficients of a, b, c

1 2
roots are real & equal

$$\text{root 1} = \text{root 2} = -1.0$$

26/12/2023
12/12/2023