

Lab prgm-1

Q wad ratic

```
import java.util.Scanner;
```

```
class Qwadratic {
```

```
{
```

```
    int a, b, c;
```

```
    double r1, r2, d;
```

```
    void get d()
```

```
    {
```

```
        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);
```

```
            a = s.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("Root 1 = root 2 = " + r1);
```

```
        }
```

```
else if (d > 0)
{
```

$$r_1 = ((-b) + (\text{Math.sqrt}(d))) / (\text{double})(2 * a);$$

$$r_2 = ((-b) - (\text{Math.sqrt}(d))) / (\text{double})(2 * a);$$

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

```
System.out.println("Root 1 = " + r1 + "Root 2 = "  
+ r2);
```

```
}
```

```
else if (d < 0)
```

```
{
```

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

$$r_1 = (-b) / (2 * a);$$

$$r_2 = \text{Math.sqrt}(-d) / (2 * a);$$

```
System.out.println("Root 1 = " + r1 + "i" + r2);
```

```
System.out.println("Root 1 = " + r1 + "-i" + r2);
```

```
}
```

```
}
```

```
}
```

```
class Quadratic Maic
```

```
{
```

```
public static void main(String args[])
```

```
{
```

```
Quadratic q = new Quadratic();
```

```
q.getd();
```

```
q.compute();
```

```
}
```

```
}
```

Output.

Enter the coefficients of a, b, c

2 3 4 4 55

Roots are imaginary

$$\text{Root 1} = 0.0 + i 1.2150598793462712$$

$$\text{Root 2} = 0.0 - i 1.2150598793462712$$

2. Enter the coefficients of a, b, c.
2 4 2

Roots are real and equal.
Root 1 = Root 2 = -1.0

3. Enter the coefficients of a, b, c.
2 6 2

Roots are real and distinct.
Root 1 = -0.381966
Root 2 = -2.61803

4. Enter the coefficients of a, b, c.
0 0 0

~~Not~~ Not a quadratic equation.
Enter a non-zero value for a;

5. Enter the coefficients equation
0 2 3.

Not a quadratic equation.
Enter a non zero value for a

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