

12/12/23

01

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LAB-01

Quadratic equation

import java.util.Scanner

class Quadratic

{

int a, b, c;

double r1, r2, d;

void get d()

{

Scanner s = new Scanner(System.in);

System.out.print("Enter the coefficients");

a = s.nextInt();

b = s.nextInt();

c = s.nextInt();

}

void compute()

{

while (a == 0)

{

System.out.println("Not a quadratic eqn");

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

Scanner s = new Scanner(System.in);

a = s.nextInt();

}

 ~~$d = b^2 - 4 * a * c;$~~ ~~if (d == 0)~~~~{~~ ~~$r1 = (-b) / 2 * a$~~ ~~System.out.println("Roots are equal");~~

```

    System.out.println("Root 1 = Root 2 = " + r1);
}
else if (d > 0)
{
    r1 = ((-b) + (Math.sqrt(d))) / (2 * a);
    r2 = ((-b) - (Math.sqrt(d))) / (2 * a);
    System.out.println("Roots are real & distinct");
    System.out.println("Root 1 = " + r1 + " Root 2 = " + r2);
}
else if (d < 0)
{
    System.out.println("Roots are imaginary");
    r1 = (-b) / (2 * a);
    r2 = Math.sqrt(-d) / (2 * a);
    System.out.println("Root 1 = " + r1 + " + i " + r2);
    System.out.println("Root 2 = " + r1 + " + i " + r2);
}
}

```

```

class Quadratic Main
{

```

```

    public static void main (String args[])
    {
        Quadratic q = new Quadratic ();
        q = get d ();
        q = compute ();
        System.out.println ("Shashank - BM22ES256");
    }
}

```


output

Enter the coefficients of a, b, c

1

2

1

Roots are real and equal

Root 1 = Root 2 = -1.0

Shashank - IBM@QCS256

Enter coefficients of a, b, c

1

3

2

Roots are real and distinct

Root 1 = -1.0 Root 2 = -2.0

Shashank - IBM@QCS256

Enter coefficients of a, b, c

0

1

3

Roots are imaginary

Root 1 = 0.1 + i 1.198578808

Root 2 = 0.1 - i 1.198578808

Shashank - IBM@QCS256