12/12/23

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Lab program - 1

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

class Quadratic {

int a, b, c;

double r1, r2, d;

void getd() {

Scanner sc = new Scanner (System.in);

System.out.println ("Enter coeff a, b, c: ");

a = sc.nextInt(); b = sc.nextInt();

c = sc.nextInt();

}

void compute() {

while (a==0){

System.out.println("Invalid coeff; enter new co:");

Scanner sc = new Scanner(System.in);

a = sc.nextInt();

}

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

if (d==0) {

r1 = -b/(2*a);

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

System.out.println ("r1 = r2 = " + 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 and distinct");

System.out.println ("r1 = " + r1 + "~~j~~" + "r2 =" + r2);

} else if (d<0) {

r1 = -b/(2*a);

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

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

}

}

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

o/p

(1) Enter a, b, c
1 & 2, 1
Roots are equal
λ1 = λ2 = -1.0

(2) Enter a, b, c
1. -3 2
Roots are real and distinct
λ1 = 1.0 λ2 = 2.0

(3) Enter a, b, c
1. 1 1
Roots are imaginary
λ1 = 0.0 + i 0.866 λ2 = 0.0 - i 0.866