Lab Program 1:

Develop a Java program that prints all real solutions to the quadratic equation ax2+bx+c = 0.

Read in a, b, c and use the quadratic formula. If the discriminant b2-4ac is negative, display a message stating that there are no real solutions.

import java.util.Scanner;

class QuadraticEquation { public static void main(String XX[])

{ double a; double b; double c;

double root1,root2;

Scanner SS=new Scanner(System.in);

System.out.print("Enter the values of a,b,c");

a=SS.nextDouble(); b=SS.nextDouble();

c=SS.nextDouble();

double determinant=b\*b-4\*a\*c;

{ if(a==0) System.out.print("It is not a quadratic equation");

else

{ if(determinant>0)

{ root1=((-b+Math.sqrt(determinant))/2\*a);

root2=((-b-Math.sqrt(determinant))/2\*a);

System.out.print("The roots are distinct and real:"+root1+"and "+root2); }

if(determinant==0)

{ root1=root2=-b/2\*a;

System.out.print("The roots are equal:"+root1); }

if(determinant<0)

{ root1=((-b+Math.abs(Math.sqrt(determinant)))/2\*a); root2=((-b-Math.abs(Math.sqrt(determinant)))/2\*a);

System.out.print("the roots are imaginary:"+"i"+root1+" "+"i"+root2); } } } } }





