|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QuadraticEquation | | | | |
| -a: double |  |  |  |  |
| -b: double |  |  |  |  |
| -c: double |  |  |  |  |
|  |  |  |  |  |
| +QuadraticEquation(a: double, b: double, c: double) | | | | |
| +getA(): double | |  |  |  |
| +getB(): double | |  |  |  |
| +getC(): double | |  |  |  |
| +getDiscriminant(): double | | |  |  |
| +getRoot1(): double | |  |  |  |
| +getRoot2(): double | |  |  |  |

elijahkorneffel@Elijahs-MacBook-Pro  ~/Git/CS2261-JAVA/Project3   project3\_03\_20\_19 ●  Script QuadraticEquationOutput

Script started, output file is QuadraticEquationOutput

elijahkorneffel@Elijahs-MacBook-Pro  ~/Git/CS2261-JAVA/Project3   project3\_03\_20\_19 ●  cat QuadraticEquation.java

//Class: CS2261-JAVA

//Due Date: 03/20/19

//Author: Elijah Korneffel

//Description: This script contains the QuadraticEquation class to be

//used with the format ax2+bx+c=0

import java.lang.Math;

import java.util.Scanner;

import java.util.Arrays;

public class QuadraticEquation

{

double a;

double b;

double c;

/\* Constructor with a, b, c input coefficients \*/

public QuadraticEquation(double a, double b, double c)

{

this.a = a;

this.b = b;

this.c = c;

}

//This method returns a value

public double getA()

{

return a;

}

//This method returns b value

public double getB()

{

return b;

}

//This method returns c value

public double getC()

{

return c;

}

//This method returns discriminant value b\*2-4\*a\*c. Returns 0 if discriminant is negative.

public double getDiscriminant()

{

double discriminant = Math.pow(b, 2) - 4\*a\*c;

return discriminant;

}

//This method returns root1 value. Returns 0 if discriminant is negative.

public double getRoot1()

{

double root1;

if(getDiscriminant() < 0)

{

root1 = 0;

}

else

{

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

}

return root1;

}

//This method returns root2 value. Returns 0 if discriminant is negative.

public double getRoot2()

{

double root2;

if(getDiscriminant() < 0)

{

root2 = 0;

}

else

{

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

}

return root2;

}

//Tests out class

public static void main(String[] args)

{

Scanner input = new Scanner(System.in);

double ain;

double bin;

double cin;

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

ain = input.nextDouble();

bin = input.nextDouble();

cin = input.nextDouble();

QuadraticEquation equation = new QuadraticEquation(ain, bin, cin);

//Displays corresponding roots based on discriminant

if(equation.getDiscriminant() < 0)

{

System.out.println("Your equation has no roots.");

}

else if(equation.getDiscriminant() > 0)

{

System.out.printf("Your equation has the roots: %f and %f", equation.getRoot1(), equation.getRoot2());

}

else

{

System.out.printf("Your equation has the root: %f", equation.getRoot1()); }

}

}

elijahkorneffel@Elijahs-MacBook-Pro  ~/Git/CS2261-JAVA/Project3   project3\_03\_20\_19 ●  javac QuadraticEquation.java

elijahkorneffel@Elijahs-MacBook-Pro  ~/Git/CS2261-JAVA/Project3   project3\_03\_20\_19 ●  java QuadraticEquation

Enter a, b, c:1.0 3 1

Your equation has the roots: -0.381966 and -2.618034%

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Enter a, b, c:1 2.0 1

Your equation has the root: -1.000000%

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Enter a, b, c:1 2 3

Your equation has no roots.

elijahkorneffel@Elijahs-MacBook-Pro  ~/Git/CS2261-JAVA/Project3   project3\_03\_20\_19 ● 

Script done, output file is QuadraticEquationOutput