**public class Complex {**

 **double** real = 0.0000;

 **double** img = 0.0000;

 **double** mod = 0.0000; // modulus

 **double** arg = 0.0000; // angle

 // set data from main

 **public** **void** setData(**double** real, **double** img) {

 **this**.real = real;

 **this**.img = img;

 }

 // method to calculate the modulus

 **void** calcMod() {

 mod = Math.*sqrt*(Math.*pow*(real, 2) + Math.*pow*(img, 2));

 }

 // method to calculate the argument

 **void** calcArg() {

 arg = Math.*atan*(img / real);

 **if** (real > 0) {

 **if** (img > 0) { // 1st quadrant

 arg = arg \* 180 / Math.*PI*;

 } **else** { // 4th quadrant

 arg = 360 + arg \* 180 / Math.*PI*;

 }

 } **else** {

 **if** (img > 0) { // 2nd quadrant

 arg = 180 + arg \* 180 / Math.*PI*;

 } **else** { // 3rd quadrant

 arg = 180 + arg \* 180 / Math.*PI*;

 }

 }

 }

 **double** getMod() {

 **return** mod;

 }

 **double** getArg() { //returns degrees

 **return** arg;

 }

}

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// This app calculates the phasor (polar) components of two complex numbers

// given their real and imaginary components (a + bi).

**public** **class** ComplexApp {

 // formatter object

 **static** NumberFormat *format1* = **new** DecimalFormat("#0.0000");

 **public** **static** **void** main(String[] args) {

 Scanner input1 = **new** Scanner(System.*in*);

 // 1st number

 Complex c1 = **new** Complex(); //create object from class Complex

 System.*out*.println("Enter real component of 1st number: ");

 **double** real1 = input1.nextDouble();

 System.*out*.println("Enter imaginary component of 1st number: ");

 **double** img1 = input1.nextDouble();

 c1.setData(real1, img1); // invokes setter method to input data

 // invoke method to calculate the modulus and argument

 c1.calcMod();

 c1.calcArg();

 **double** modulus = c1.getMod();

 System.*out*.println("Modulus = " + *format1*.format(modulus));

 **double** argument = c1.getArg();

 System.*out*.println("Argument (deg) = " +

 *format1*.format(argument));

 System.*out*.println("\n\*\*\*\*\*\*\*\*\*");

 // 2nd number

 Complex c2 = **new** Complex(); //create object from class Complex

 System.*out*.println("Enter real component of 2nd number: ");

 **double** real2 = input1.nextDouble();

 System.*out*.println("Enter imaginary component of 2nd number: ");

 **double** img2 = input1.nextDouble();

 c2.setData(real2, img2); // invokes setter method to input data

 // invoke method to calculate the modulus and argument

 c2.calcMod();

 c2.calcArg();

 **double** modulus2 = c2.getMod();

 System.*out*.println("Modulus = " + *format1*.format(modulus2));

 **double** argument2 = c2.getArg();

 System.*out*.println("Argument (deg) = " +

 *format1*.format(argument2));

 input1.close(); // close scanner

 }

}

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**OUTPUT**

Enter real component of 1st number:

-3

Enter imaginary component of 1st number:

4

Modulus = 5.0000

Argument (deg) = 126.8699

\*\*\*\*\*\*\*\*\*

Enter real component of 2nd number:

3

Enter imaginary component of 2nd number:

-4

Modulus = 5.0000

Argument (deg) = 306.8699