Review Questions/Exercises

Generate a random number between -5 and 20, a random even number from 2 to 10.

rand.nextInt(26) - 5

(rand.nextInt(5) + 1) \* 2

Differences between a primitive type and a reference type.

A primitive type variable stores the value, whereas a reference type variable holds a reference to an object.

Draw a diagram showing int variable a with value 5 and String variable s with value “Hello”. Show updated diagram after a = 7; and s = “Good bye”.

Initial state

a (5)

s --> (“Hello”)

Operation

a = 7

s = “Good bye”

Final state

a (7)

(“Hello”)

s --> (“Good bye”)

Determine output for a segment of code like ex 2.3.

Here we go!12345

Test this if you are not sure.Another.

All done.

Translate pseudocode to Java code.

1. Input integers a and b

2. Output twice the sum of a and b

int a, b;

Scanner scan = new Scanner(System.in);

System.out.print(“Enter the first integer: ”);

a = scan.nextInt();

System.out.print(“Enter the second integer: ”);

b = scan.nextInt();

System.out.println(“Twice the sum of the two integers is: “ + (2 \* (a + b)));

What is a constructor and how do you set one up?

Constructors are special methods in an object that are used to initialize data in the object when it is instantiated. A constructor always have the same name as its class name, and it has no return type.

Explain why Math class is different from most other classes.

All methods in the Math class are static methods, which means we can use the methods through the class name without instantiate an object of the class. Also, Math class is included in java.lang so we do not need to import it.

Set up a method that accepts some parameters and performs a task (for example, a method that receives two integer values and returns a floating-point average).

public double average (int a, int b) {

return ((double) a + b) / 2;

}

When we draw a Rectangle with x = 100, y = 50, width = 200, height = 120, where does it go on a 600 by 400 window?

The x and y value indicate where the upper left corner of the rectangle is at, which is (100, 50), then it extends to the right by 200 and down by 120.

Perform some work with a string using various string operations.

str.charAt(0);

str.concat(phrase);

str.substring(0, 1);

str.substring(3);

str.length();

str.toUpperCase();

str.equals(phrase);

str.equalsIgnoreCase(phrase);

str.replace(‘k’, ‘o’);

str.toLowerCase();

Complete the code for a partial class such as getters, setters, and toString().

public class Student {

private String name;

private String id;

public String getName () {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getID () {

return id;

}

public void setID(String id) {

this.id = id;

}

public String toString() {

return (“Student Name: “ + this.name + “\n” + “Student ID: ” + this.id;

}

public boolean equals(Student other) {

return this.id == other.getID();

}

}

Given an amount like 67 cents, compute number of quarters, dimes, nickels, and pennies.

int cents = 67;

int quarters, dimes, nickels, pennies;

quarters = cents / 25;

cents %= 25;

dimes = cents / 10;

cents %= 10;

nickels = cents / 5;

cents %= 5;

pennies = cents;

NumberFormat currency = NumberFormat.getCurrencyInstance();

NumberFormat percent = NumberFormat.getPercentInstance();

DecimalForamt decimal = new DecimalFormat(“#.###”);