

CS 101: Quiz #5, February 25, 2009, SOLUTIONS

1. Assuming that a `Random` object has been created called `generator`, what is the range of the result of each of the following expressions?

(a) `generator.nextInt(20)`

Solution: 0 to 19

(b) `generator.nextInt(45) + 10`

Solution: 10 to 54

2. Write an application that reads (from the user) the (x,y) coordinates for two points. Compute the distance between the two points using the following formula:

$$\text{Distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}.$$

Solution:

```
import java.util.Scanner;
public class ComputeDistance{
    public static void main (String[] args){
        Scanner scan = new Scanner(System.in);
        double x1,x2,y1,y2,distance;
        System.out.print ("Enter the (x,y) coordinates of a point: ");
        x1 = scan.nextDouble();
        y1 = scan.nextDouble();
        System.out.print ("Enter the (x,y) coordinates of another point: ");
        x2 = scan.nextDouble();
        y2 = scan.nextDouble();
        distance = Math.sqrt((x2-x1)*(x2-x1) + (y2-y1)*(y2-y1));
        System.out.println ("The distance between (" + x1 + "," + y1
            + ") and (" + x2 + "," + y2 + ") is "
            + distance + ".");
    }
}
```