4. A class called MyPoint, which models a 2D point with x and y coordinates, is designed as

follows:

● Two instance variables x (int) and y (int).

● A default (or &quot;no-arg&quot;) constructor that construct a point at the default location of (0, 0).

● A overloaded constructor that constructs a point with the given x and y coordinates.

● A method setXY() to set both x and y.

● A method getXY() which returns the x and y in a 2-element int array.

● A toString() method that returns a string description of the instance in the format &quot;(x, y)&quot;.

● A method called distance(int x, int y) that returns the distance from this point to another

point at the given (x, y) coordinates

● An overloaded distance(MyPoint another) that returns the distance from this point to the

given MyPoint instance (called another)

● Another overloaded distance() method that returns the distance from this point to the origin

(0,0) Develop the

code for the class MyPoint. Also develop a JAVA program (called TestMyPoint) to test all the

methods defined

in the class.

class MyPoint

{

private int x;

private int y;

public MyPoint()

{

// Default constructor initializes the point at (0, 0)

this.x = 0;

this.y = 0;

}

public MyPoint(int x, int y)

{

// Overloaded constructor to set x and y coordinates

this.x = x;

this.y = y;

}

public void setXY(int x, int y)

{

// Set both x and y coordinates

this.x = x;

this.y = y;

}

public int[] getXY()

{

// Return x and y in a 2-element int array

return new int[]{x, y};

}

@Override

public String toString()

{

// Return a string description of the point in the format &quot;(x, y)&quot;

return &quot;(&quot; + x + &quot;, &quot; + y + &quot;)&quot;;

}

public double distance(int x, int y)

{

// Calculate the distance from this point to another point at (x, y) coordinates

int dx = this.x - x;

int dy = this.y - y;

return Math.sqrt(dx \* dx + dy \* dy);

}

public double distance(MyPoint another)

{

// Calculate the distance from this point to another MyPoint instance

return distance(another.x, another.y);

}

public double distance()

{

// Calculate the distance from this point to the origin (0,0)

return distance(0, 0);

}

}

public class Point {

public static void main(String[] args) {

// Create MyPoint objects using both constructors

MyPoint point1 = new MyPoint();

MyPoint point2 = new MyPoint(3, 4);

// Display the points

System.out.println(&quot;Point 1: &quot; + point1);

System.out.println(&quot;Point 2: &quot; + point2);

// Set new coordinates for point1

point1.setXY(1, 2);

System.out.println(&quot;New coordinates for Point 1: &quot; + point1);

// Get and display x and y coordinates of point2

int[] coordinates = point2.getXY();

System.out.println(&quot;Point 2 Coordinates: x = &quot; + coordinates[0] + &quot;, y = &quot; + coordinates[1]);

// Calculate and display distances

double distance1 = point1.distance(point2);

double distance2 = point1.distance(5, 6);

double distance3 = point1.distance();

System.out.println(&quot;Distance from Point 1 to Point 2: &quot; + distance1);

System.out.println(&quot;Distance from Point 1 to (5, 6): &quot; + distance2);

System.out.println(&quot;Distance from Point 1 to the origin (0,0): &quot; + distance3);

}

}

OUTPUT:

Point 1: (0, 0)

Point 2: (3, 4)

New coordinates for Point 1: (1, 2)

Point 2 Coordinates: x = 3, y = 4

Distance from Point 1 to Point 2: 2.8284271247461903

Distance from Point 1 to (5, 6): 5.656854249492381

Distance from Point 1 to the origin (0,0): 2.23606797749979