Problem Description

You will need to write two files: Point.java and Quadrilateral.java.
A simple driver class TestQuadrilateral.java has been provided, and it will allow you to interact with your simulation. Specific instructions for each file are given in later sections.

Solution Description

`Point.java`

Your `Point.java` should have the following fields, methods and constructors

- `private double x, y:` These fields are the name of the dimensions of a 2d point
- `public Point(double x, double y):` This is the constructor of Point class and it takes the dimensions as its parameters
- `public double distance(Point p):` This method returns the distance between itself and a point p, passed as a parameter
- `public String toString():` This method returns the dimensions of the point

`Quadrilateral.java`

Your `Quadrilateral.java` should have the following fields, methods and constructors

- `private Point p1, p2, p3, p4:` These fields are the names of the four points of a quadrilateral and they should be initialized in the constructor. The points passed as arguments will be in counter-clockwise order
- `public Quadrilateral(double x1, double y1, double x2, double y2, double x3, double y3, double x4, double y4):` This is the constructor of the class and it takes the dimension of the four points as its parameter
- `public Quadrilateral(Point p1, Point p2, Point p3, Point p4):` This is another constructor of the class and it takes four points as its parameter
- `public boolean isRectangle():` This method returns true if the quadrilateral is a rectangle or false otherwise
- `public boolean isSquare():` This method returns true if the quadrilateral is a square or false otherwise
- `public boolean isRhombus():` This method returns true if the quadrilateral is a rhombus or false otherwise
- `public boolean isParallelogram():` This method returns true if the quadrilateral is a parallelogram or false otherwise
- `public boolean isOrdinary():` This method returns true if the quadrilateral is not any of the followings: rectangle, square, rhombus, parallelogram or returns false otherwise.
- `public String toString():` This method returns the dimension of the 4 points

Running and Testing

TestQuadrilateral.java

`TestQuadrilateral.java` has been provided for you. It creates several instances of quadrilateral, and allows the user to interact with them. You can run the main method to start a simulation, and test from there.

```
Quadrilateral q1, q2, q3, q4, q5, q6, q7;
q1 = new Quadrilateral(10, 20, 40, 20, 40, 40, 10, 40);
q2 = new Quadrilateral(20, 30, 40, 30, 40, 50, 20, 50);
Point p1 = new Point(50, 30);
Point p2 = new Point(150, 30);
Point p3 = new Point(100, 60);
Point p4 = new Point(60, 70);
q3 = new Quadrilateral(p1, p2, p3, p4);
q4 = new Quadrilateral(6, 7, 36, 7, 48, 26, 18, 26);
q5 = new Quadrilateral(2, -4, 9, -3, 4, 2, -3, 1);
q6 = new Quadrilateral(1, -2, 4, 1, 1, 4, -2, 1);
q7 = new Quadrilateral(39, 2, 47, 16, 16, 34, 8, 20);

System.out.println(q1.isSquare());
System.out.println(q1.isRectangle());
System.out.println(q1.isRhombus());
System.out.println(q1.isParallelogram());
System.out.println(q1.isOrdinary());
System.out.println();

System.out.println(q2.isSquare());
System.out.println(q2.isRectangle());
System.out.println(q2.isRhombus());
System.out.println(q2.isParallelogram());
System.out.println(q2.isOrdinary());
System.out.println();

System.out.println(q3.isSquare());
System.out.println(q3.isRectangle());
System.out.println(q3.isRhombus());
System.out.println(q3.isParallelogram());
System.out.println(q3.isOrdinary());
System.out.println();

System.out.println(q4.isSquare());
System.out.println(q4.isRectangle());
System.out.println(q4.isRhombus());
System.out.println(q4.isParallelogram());
System.out.println(q4.isOrdinary());
System.out.println();

System.out.println(q5.isSquare());
System.out.println(q5.isRectangle());
System.out.println(q5.isRhombus());
System.out.println(q5.isParallelogram());
System.out.println(q5.isOrdinary());
```

```
System.out.println();

System.out.println(q6.isSquare());
System.out.println(q6.isRectangle());
System.out.println(q6.isRhombus());
System.out.println(q6.isParallelogram());
System.out.println(q6.isOrdinary());
System.out.println();

System.out.println(q7.isSquare());
System.out.println(q7.isRectangle());
System.out.println(q7.isRhombus());
System.out.println(q7.isParallelogram());
System.out.println(q7.isOrdinary());
```

Output

```
false
true
false
false
false

true
false
false
false
false

false
false
false
false
true

false
false
false
true
false

false
false
true
false
```

```
false

true
false
false
false
false

false
false
false
true
false
```