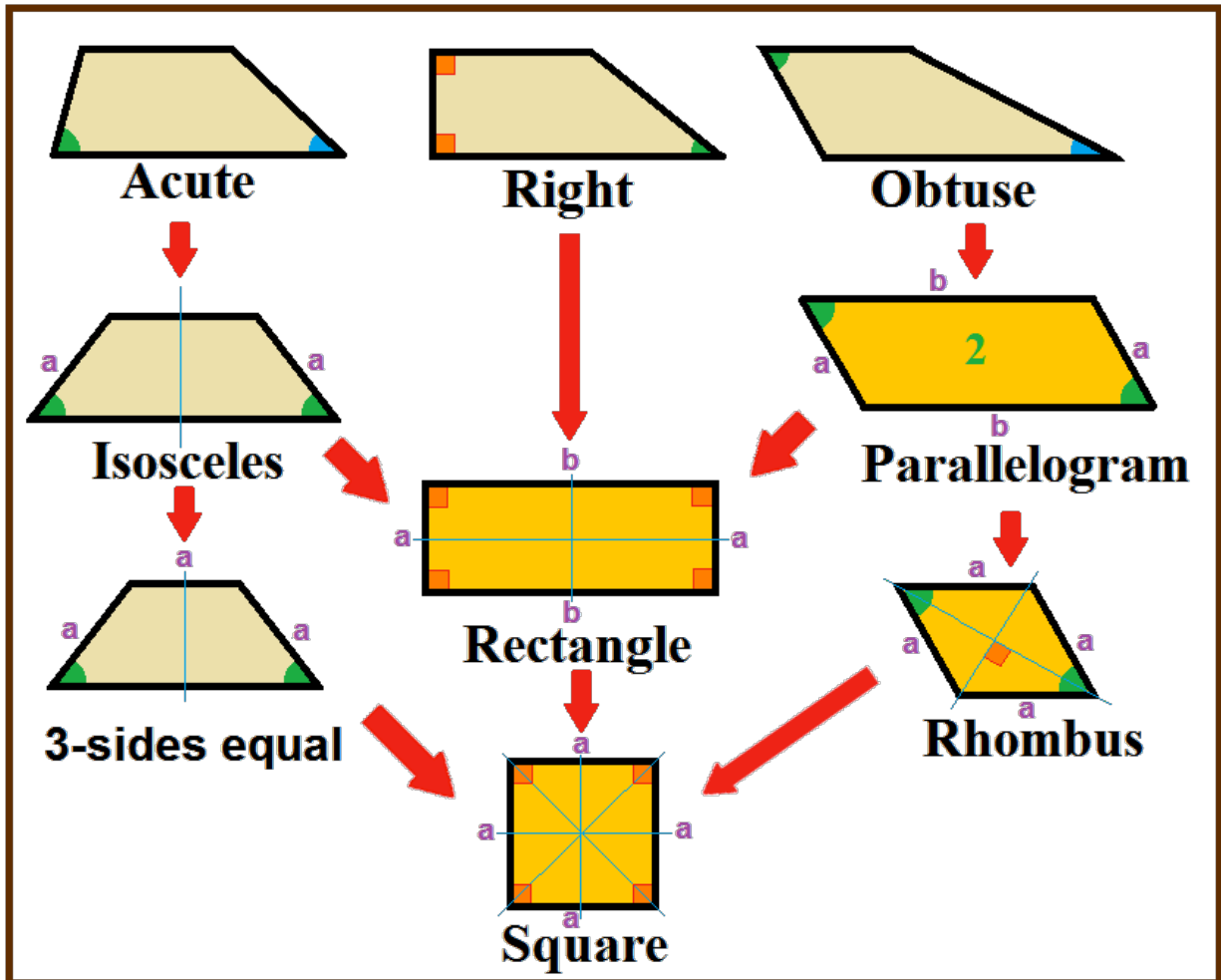# CS 030   Programming Assignment #5

Trapezoids

Summary:
1. Write a library class that models a quadrilateral.
2. Write a user-facing program that asks a user to enter four 2D points and then describes the shape of the resulting polygon.

Specifications:

1. Library class:
   1. Your library class should be called Quadrilateral
   2. It should be in the package "edu.westmont.cs030"
   3. It should have a constructor that takes 8 double parameters (x1,y1,x2,y2,x3,y3,x4,y4)
      1. You can assume the points are in order either clockwise or counterclockwise and form a convex polygon
   4. The class should have methods that return boolean values if the shape matches the method name:
      1. isSquare
      2. isRectangle
      3. isRhombus
      4. isParallelogram
      5. isTrapezoid
2. Application:
   1. Your application should be called from the main function in Quadrilateral. (note that we are using one class as both the application and the system class.
      1. It should ask the user to input four 2D points (x,y) and then output the most specific shape that it is. So in order it should print out that it is a
         1. Square
         2. Rectangle
         3. Rhombus
         4. Parallelogram
         5. Trapezoid
         6. None of the Above

Evaluations:

Turn in 1 class file. I will test it with several hundred JUnit tests like this one:

@Test
```
public void test() {
        Quadrilateral q = new Quadrilateral(0.0,0.0,0.0,1.0,1.0,1.0,1.0,0.0);
        assertEquals(true,q.isSquare());
}
```

Hints:

Write a few test cases of your own with examples of shapes that you know should meet the criteria of the 5 different categories before you begin programming

Don't forget that floats and doubles shouldn't be tested for equality with "=="