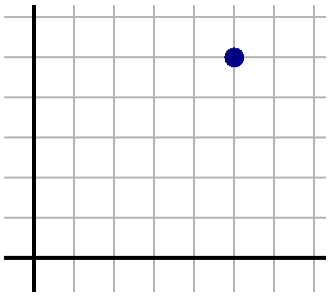
NOTE: Even though each test only has 2-3 cases, comprehensive coverage for some tests is achieved by splitting the cases among the two classes for the objects involved. For example, combining the test cases of both Rectangle.intersect(Circle) and Circle.intersect(Rectangle) covers 4 unique test cases in total which all test for different forms of rectangle and circle intersection. Similarly, combining something like LineSeg.intersect(Rectangle) and Rectangle.intersect(LineSeg) covers a total of 5 unique and different test cases for line and rectangle intersection. This way, we are able to check that each intersection method works for each class, and that the intersection algorithm is valid overall by checking all edge cases.

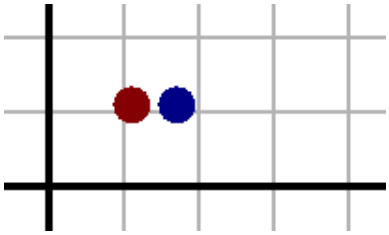
Test of Point.intersect(Point)

Case1:



Point p1 = new Point(5.0f, 5.0f);
Point p2 = new Point(5.0f, 5.0f);
Expected Result: true
Code Result: true
Test Result: pass

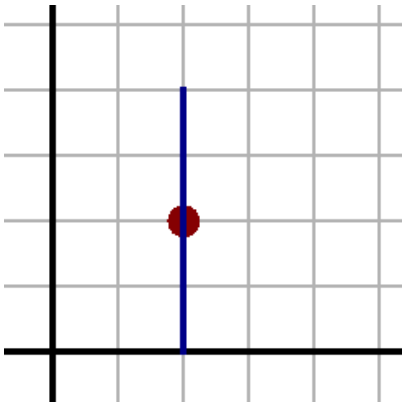
Case2:



Point p3 = new Point(1.1f, 1.1f);
Point p4 = new Point(1.7f, 1.1f);
Expected Result: falseA2
Code Result: false
Test Result: pass

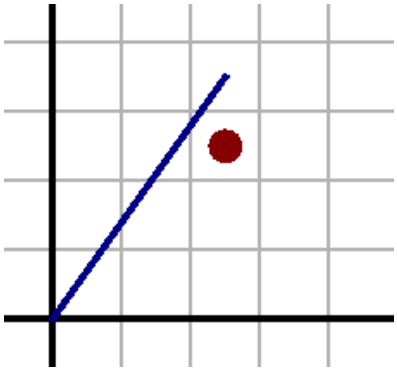
Test of Point.intersect(LineSeg)

Case1:



Point p1 = new Point(2.0f, 2.0f);
LineSeg l1 = new LineSeg(new Point(2.0f, 0.0f), new Point(2.0f, 4.0f));
Expected Result: true
Code Result: true
Test Result: pass

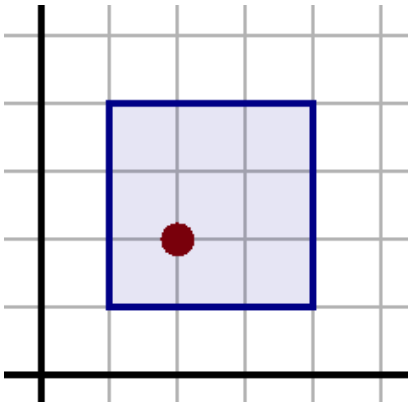
Case2:



Point p2 = new Point(2.5f, 2.5f);
LineSeg l2 = new LineSeg(new Point(0, 0), new Point(2.5f, 3.5f));
Expected Result: false
Code Result: false
Test Result: pass

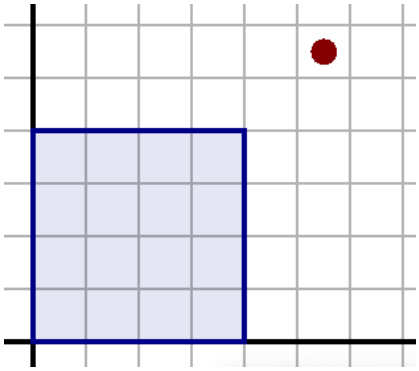
Test of Point.intersect(Rectangle)

Case1:



Point p1 = new Point(2.0f, 2.0f);
Rectangle r1 = new Rectangle(1.0f, 4.0f, 4.0f, 1.0f);
Expected Result: true
Code Result: true
Test Result: pass

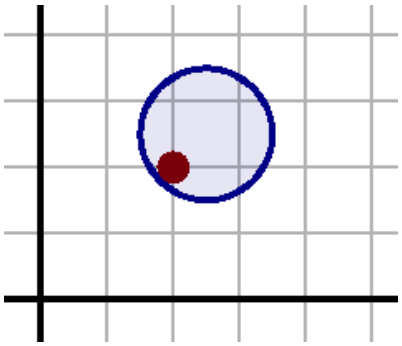
Case2:



Point p2 = new Point(5.5f, 5.5f);
Rectangle r2 = new Rectangle(0.0f, 4.0f, 4.0f, 0.0f);
Expected Result: false
Code Result: false
Test Result: pass

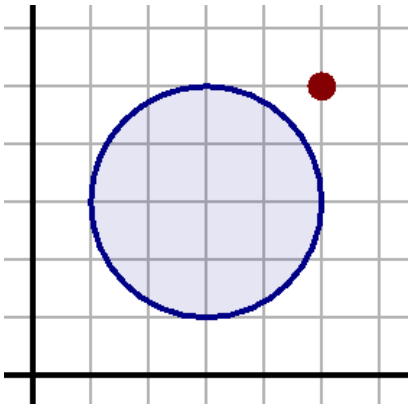
Test of Point.intersect(Circle)

Case1:



Point p1 = new Point(2.0f, 2.0f);
Circle c1 = new Circle(new Point(2.5f, 2.5f), 1);
Expected Result: true
Code Result: true
Test Result: pass

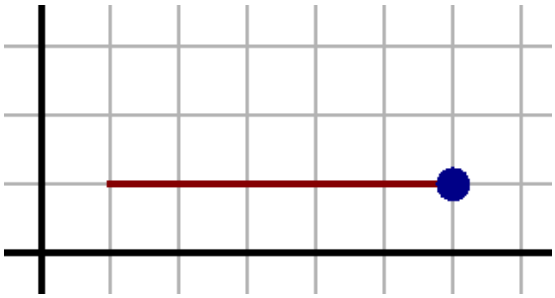
Case2:



Point p2 = new Point(5.0f, 5.0f);
Circle c2 = new Circle(new Point(3.0f, 3.0f), 2);
Expected Result: false
Code Result: false
Test Result: pass

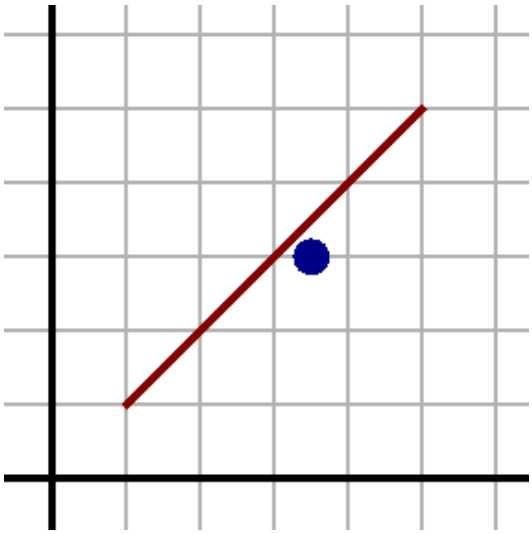
Test of LineSeg.intersect(Point)

Case1:



LineSeg l1 = new LineSeg(new Point(1.0f, 1.0f), new Point(6.0f, 1.0f));
Point p1 = new Point(6.0f, 1.0f);
Expected Result: true
Code Result: true
Test Result: pass

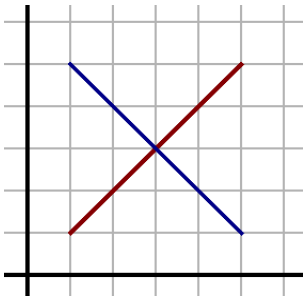
Case2:



LineSeg l2 = new LineSeg(new Point(1.0f, 1.0f), new Point(5.0f, 5.0f));
Point p2 = new Point(3.5f, 3.0f);
Expected Result: false
Code Result: false
Test Result: pass

Test of LineSeg.intersect(LineSeg)

Case1:

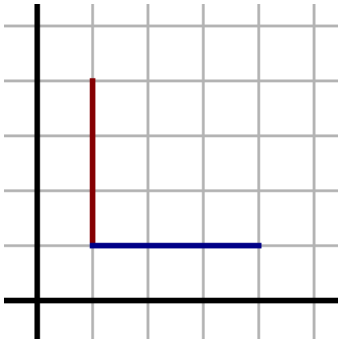


LineSeg l1 = new LineSeg(new Point(1.0f, 1.0f), new Point(5.0f, 5.0f));
LineSeg l2 = new LineSeg(new Point(1.0f, 5.0f), new Point(5.0f, 1.0f));
Expected Result: true
Code Result: true
Test Result: pass

Case2:

LineSeg l3 = new LineSeg(new Point(1.0f, 1.0f), new Point(7.0f, 1.0f));
LineSeg l4 = new LineSeg(new Point(1.0f, 1.3f), new Point(7.0f, 1.3f));
Expected Result: false
Code Result: false
Test Result: pass

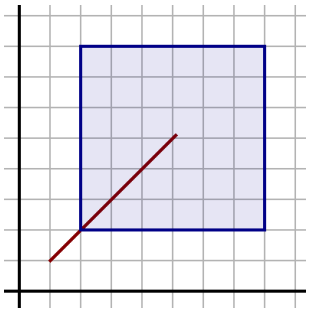
Case3:



LineSeg l5 = new LineSeg(new Point(1.0f, 1.0f), new Point(1.0f, 4.0f));
LineSeg l6 = new LineSeg(new Point(1.0f, 1.0f), new Point(4.0f, 1.0f));
Expected Result: true
Code Result: true
Test Result: pass

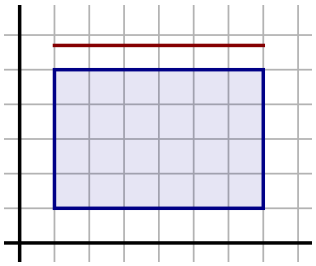
Test of LineSeg.intersect(Rectangle)

Case1:



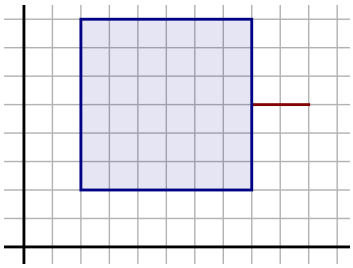
LineSeg l1 = new LineSeg(new Point(1.0f, 1.0f), new Point(5.1f, 5.1f));
Rectangle r1 = new Rectangle(2.0f, 8.0f, 8.0f, 2.0f);
Expected Result: true
Code Result: true
Test Result: pass

Case2:



LineSeg l2 = new LineSeg(new Point(1.0f, 5.7f), new Point(7.0f, 5.7f));
Rectangle r2 = new Rectangle(1.0f, 7.0f, 5.0f, 1.0f);
Expected Result: false
Code Result: false
Test Result: pass

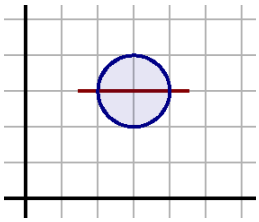
Case3:



LineSeg l3 = new LineSeg(new Point(8.0f, 5.0f), new Point(10.0f, 5.0f));
Rectangle r3 = new Rectangle(2.0f, 8.0f, 8.0f, 2.0f);
Expected Result: true
Code Result: true
Test Result: pass

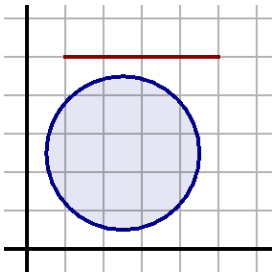
Test of LineSeg.intersect(Circle)

Case1:



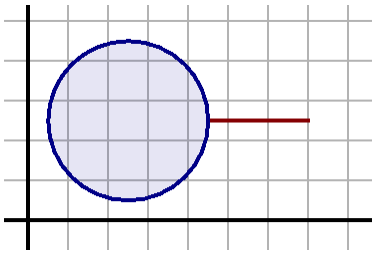
LineSeg l1 = new LineSeg(new Point(1.5f, 3.0f), new Point(4.5f, 3.0f));
Circle c1 = new Circle(new Point(3.0f, 3.0f), 1.0f);
Expected Result: true
Code Result: true
Test Result: pass

Case2:



LineSeg l2 = new LineSeg(new Point(1.0f, 5.0f), new Point(5.0f, 5.0f));
Circle c2 = new Circle(new Point(2.5f, 2.5f), 2.0f);
Expected Result: false
Code Result: false
Test Result: pass

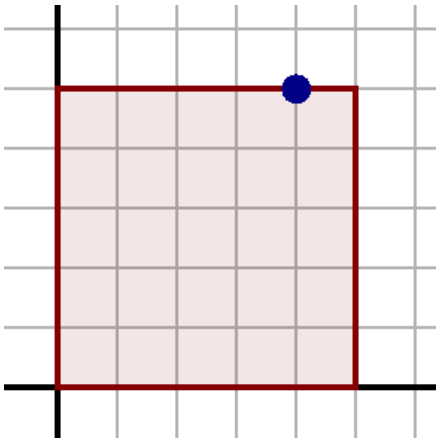
Case3:



LineSeg l3 = new LineSeg(new Point(4.5f, 2.5f), new Point(7.0f, 2.5f));
Circle c3 = new Circle(new Point(2.5f, 2.5f), 2.0f);
Expected Result: true
Code Result: true
Test Result: pass

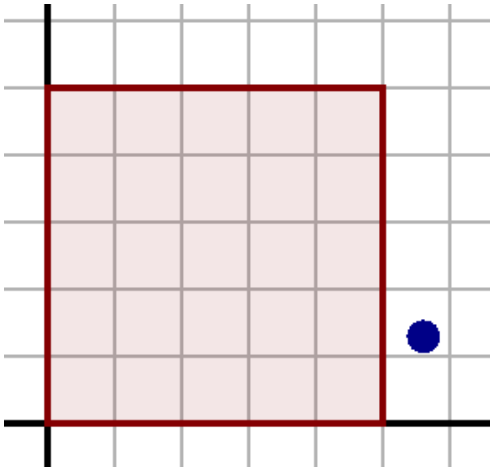
Test of Rectangle.intersect(Point)

Case1:



Rectangle r1 = new Rectangle(0.0f, 5.0f, 5.0f, 0.0f);
Point p1 = new Point(4.0f, 5.0f);
Expected Result: true
Code Result: true
Test Result: pass

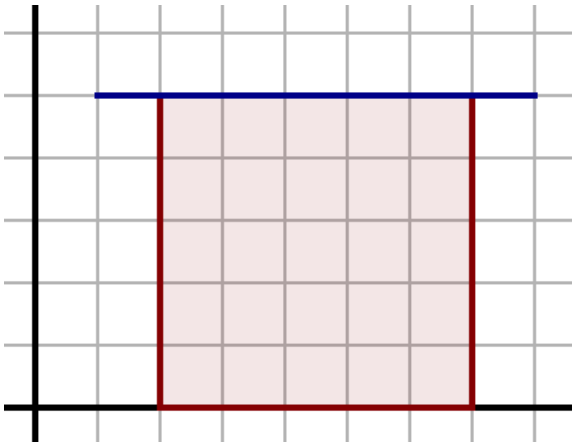
Case2:



Rectangle r2 = new Rectangle(0.0f, 5.0f, 5.0f, 0.0f);
Point p2 = new Point(5.6f, 1.3f);
Expected Result: false
Code Result: false
Test Result: pass

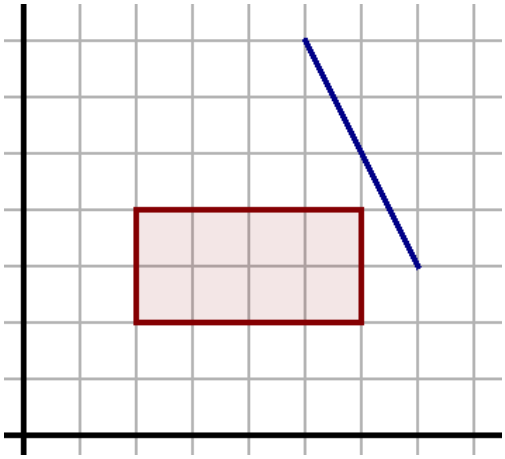
Test of Rectangle.intersect(LineSeg)

Case1:



Rectangle r1 = new Rectangle(2.0f, 7.0f, 5.0f, 0.0f);
LineSeg l1 = new LineSeg(new Point(1.0f, 5.0f), new Point(8.0f, 5.0f));
Expected Result: true
Code Result: true
Test Result: pass

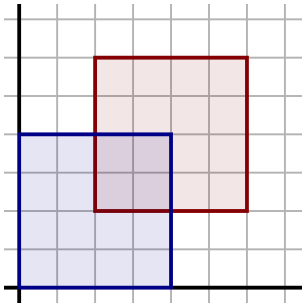
Case2:



Rectangle r2 = new Rectangle(2.0f, 6.0f, 4.0f, 2.0f);
LineSeg l2 = new LineSeg(new Point(5.0f, 7.0f), new Point(7.0f, 3.0f));
Expected Result: false
Code Result: false
Test Result: pass

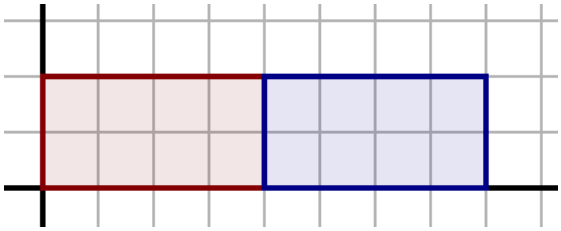
Test of Rectangle.intersect(Rectangle)

Case1:



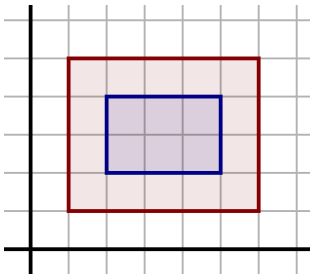
Rectangle r1 = new Rectangle(0.0f, 4.0f, 4.0f, 0);
Rectangle r2 = new Rectangle(2.0f, 6.0f, 6.0f, 2.0f);
Expected Result: true
Code Result: true
Test Result: pass

Case2:



Rectangle r3 = new Rectangle(0.0f, 4.0f, 2.0f, 0.0f);
Rectangle r4 = new Rectangle(4.0f, 8.0f, 2.0f, 0.0f);
Expected Result: false
Code Result: false
Test Result: pass

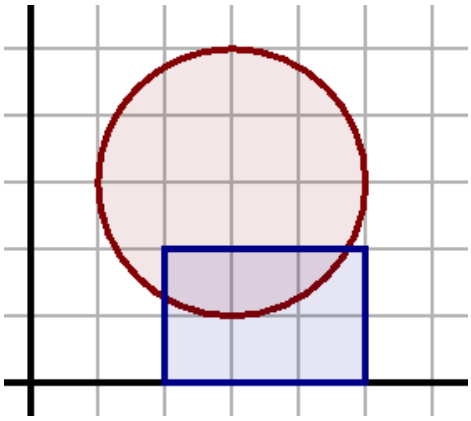
Case3:



Rectangle r5 = new Rectangle(1.0f, 6.0f, 5.0f, 1.0f);
Rectangle r6 = new Rectangle(2.0f, 5.0f, 4.0f, 2.0f);
Expected Result: true
Code Result: true
Test Result: pass

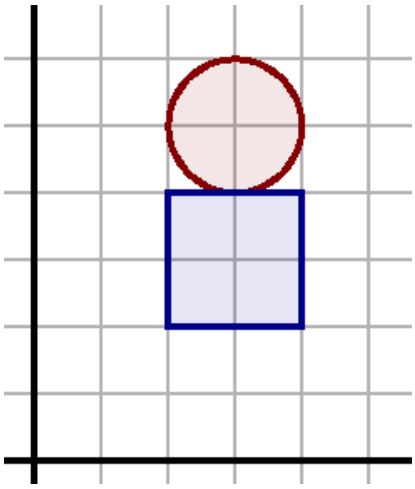
Test of Rectangle.intersect(Circle)

Case1:



Rectangle r1 = new Rectangle(2.0f, 5.0f, 2.0f, 0.0f);
Circle c1 = new Circle(new Point(3.0f, 3.0f), 2.0f);
Expected Result: true
Code Result: true
Test Result: pass

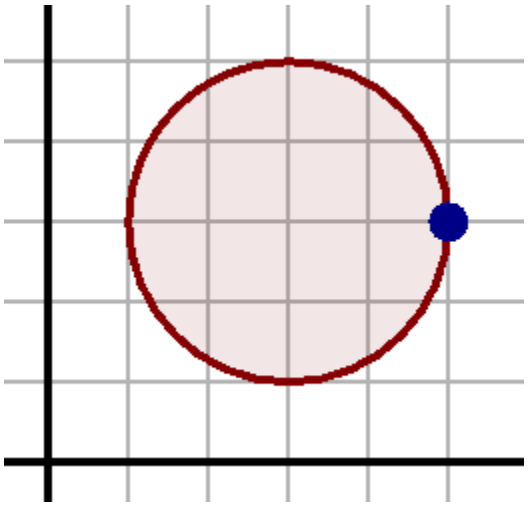
Case2:



Rectangle r2 = new Rectangle(2.0f, 4.0f, 4.0f, 2.0f);
Circle c2 = new Circle(new Point(3.0f, 5.0f), 1.0f);
Expected Result: false
Code Result: false
Test Result: pass

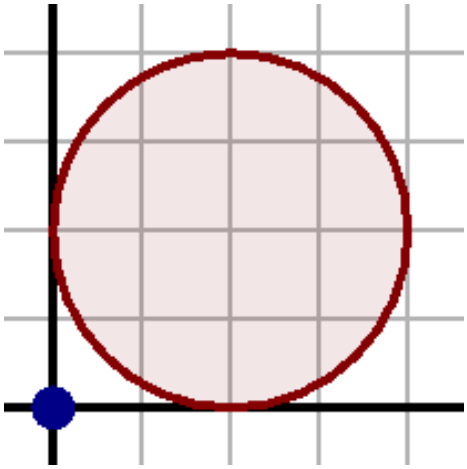
Test of Circle.intersect(Point)

Case1:



Circle c1 = new Circle(new Point(3.0f, 3.0f), 2.0f);
Point p1 = new Point(5.0f, 3.0f);
Expected Result: true
Code Result: true
Test Result: pass

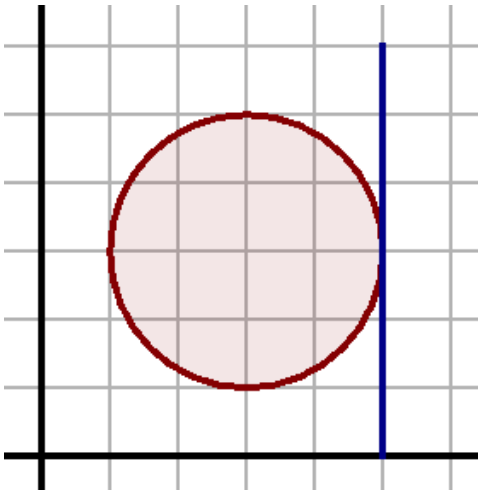
Case2:



Circle c2 = new Circle(new Point(2.0f, 2.0f), 2.0f);
Point p2 = new Point(0.0f,0.0f);
Expected Result: false
Code Result: false
Test Result: pass

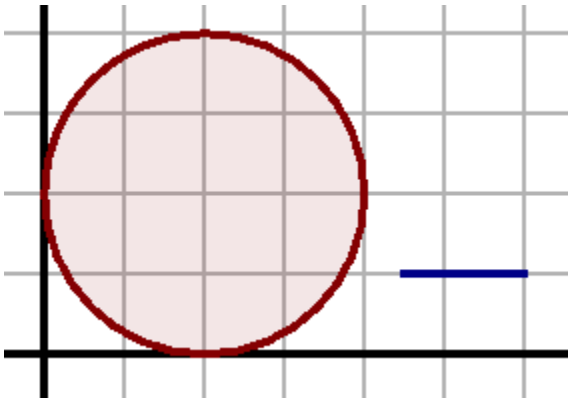
Test of Circle.intersect(LineSeg)

Case1:



Circle c1 = new Circle(new Point(3.0f, 3.0f), 2.0f);
LineSeg l1 = new LineSeg(new Point(5.0f, 6.0f), new Point(5.0f, 0.0f));
Expected Result: true
Code Result: true
Test Result: pass

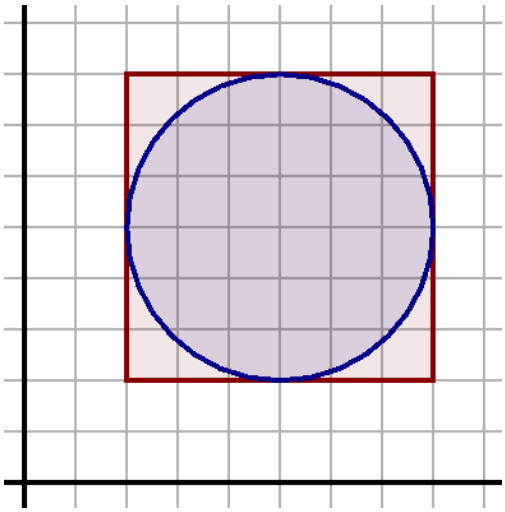
Case2:



Circle c2 = new Circle(new Point(2.0f, 2.0f), 2.0f);
LineSeg l2 = new LineSeg(new Point(4.5f, 1.0f), new Point(6.0f, 1.0f));
Expected Result: false
Code Result: false
Test Result: pass

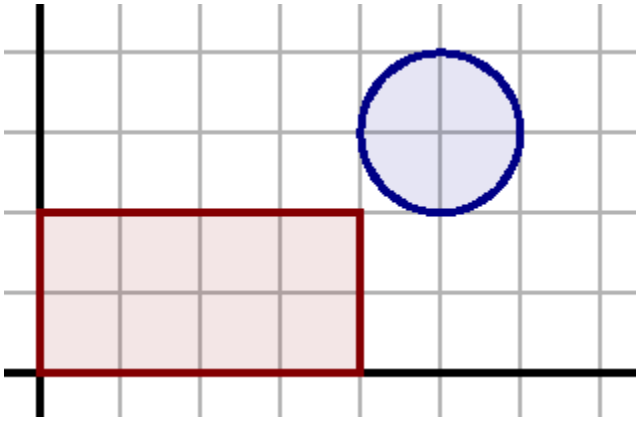
Test of Circle.intersect(Rectangle)

Case1:



Rectangle r1 = new Rectangle(2.0f, 8.0f, 8.0f, 2.0f);
Circle c1 = new Circle(new Point(5.0f, 5.0f), 3.0f);
Expected Result: true
Code Result: true
Test Result: pass

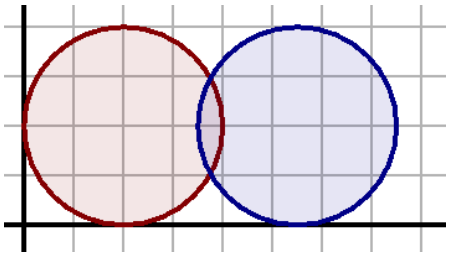
Case2:



Rectangle r2 = new Rectangle(0.0f, 4.0f, 2.0f, 0.0f);
Circle c2 = new Circle(new Point(5.0f, 3.0f), 1.0f);
Expected Result: false
Code Result: false
Test Result: pass

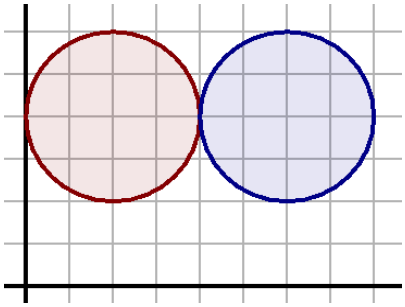
Test of Circle.intersect(Cicle)

Case1:



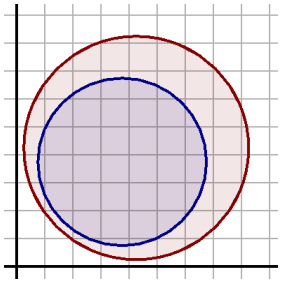
Circle c1 = new Circle(new Point(2.0f, 2.0f), 2.0f);
Circle c2 = new Circle(new Point(5.5f, 2.0f), 2.0f);
Expected Result: true
Code Result: true
Test Result: pass

Case2:



Circle c3 = new Circle(new Point(2.0f, 4.0f), 2.0f);
Circle c4 = new Circle(new Point(6.0f, 4.0f), 2.0f);
Expected Result: false
Code Result: false
Test Result: pass

Case3:



Circle c5 = new Circle(new Point(4.25f, 4.25f), 4.0f);
Circle c6 = new Circle(new Point(3.75f, 3.75f), 3.0f);
Expected Result: true
Code Result: true
Test Result: pass