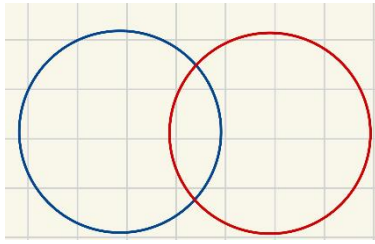# Test Cases for Shape Intersection Methods
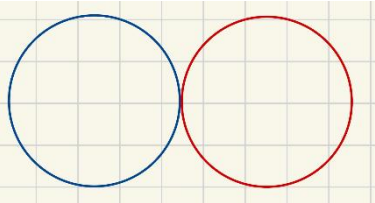
Circle

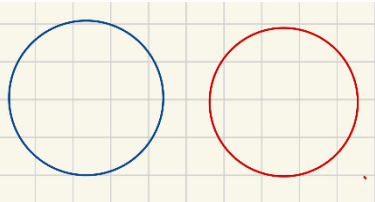- **Test of Circle.intersect(Circle)**

  Case 1

  Circle c1 = new Circle(new Point(2, 3), 5);
  Circle ct1 = new Circle(new Point(9,3), 5);
  Expected Result: true
  Code Result: true
  Test Result: pass

  Case 2

  Circle c1 = new Circle(new Point(2, 3), 5);
  Circle ct2 = new Circle(new Point(9,10.2f), 5);
  Expected Result: false
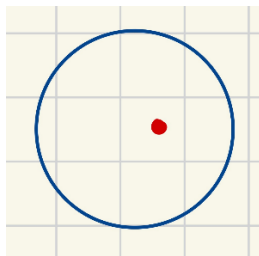 Code Result: false
  Test Result: pass

  Case 3

  Circle c1 = new Circle(new Point(2, 3), 5);
  Circle ct3 = new Circle(new Point(9,11), 5);
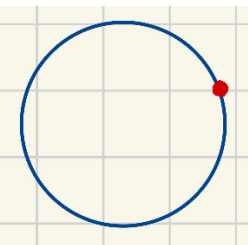 Expected Result: false
  Code Result: false
  Test Result: pass

- **Test of Circle.intersect(Point)**

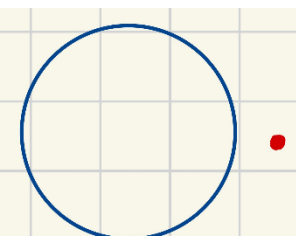 **Case 1**

  Circle c1 = new Circle(new Point(2, 3), 5);
  Point p1 = new Point(2, 3);
  Result: true
  Code Result: true
  Test Result: pass

  Case 2

  Circle c1 = new Circle(new Point(2, 3), 5);
  Point p2 = new Point(5, 7);
  Expected Result: false
  Code Result: false
  Test Result: pass

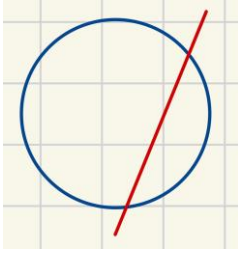 **Case 3**

  Circle c1 = new Circle(new Point(2, 3), 5);
  Point p3 = new Point(7, 5);
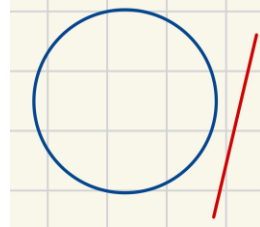 Expected Result: false
  Code Result: false
  Test Result: pass

- **Test of Circle.intersect(LineSeg)**

Case 1
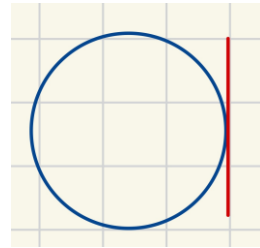

Circle c1 = new Circle(new Point(2, 3), 5);
LineSeg l1 = new LineSeg(new Point(0, 0), new Point(7, 7));
Result: true
Code Result: true
Test Result: pass

Case 2

Circle c1 = new Circle(new Point(2, 3), 5);
LineSeg l2 = new LineSeg(new Point(10, 0), new Point(10, 5));
Expected Result: false
Code Result: false
Test Result: pass
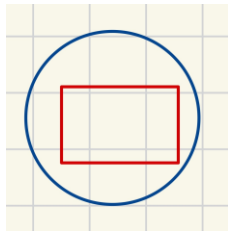
Case 3

Circle c1 = new Circle(new Point(2, 3), 5);
LineSeg l3 = new LineSeg(new Point(7, 0), new Point(7, 5));
Expected Result: false
Code Result: false
Test Result: pass

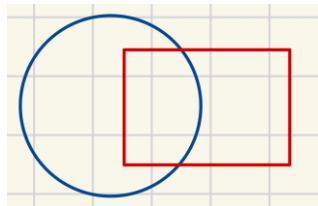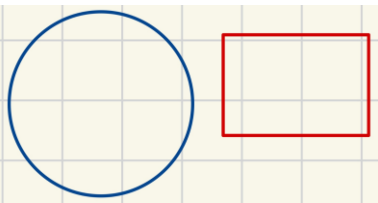- **Test of Circle.intersect(Rectangle)**

Case 1

Circle c1 = new Circle(new Point(2, 3), 5);
Rectangle r1 = new Rectangle(0, 5, 7, 0);
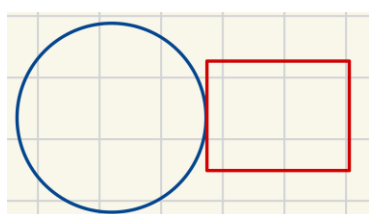Result: true
Code Result: true
Test Result: pass

Case 2

Circle c1 = new Circle(new Point(2, 3), 5);
Rectangle r2 = new Rectangle(5, 10, 12, 5);
Expected Result: false
Code Result: false
Test Result: pass

Case 3

Circle c1 = new Circle(new Point(2, 3), 5);
Rectangle r3 = new Rectangle(10, 15, 5, 0);
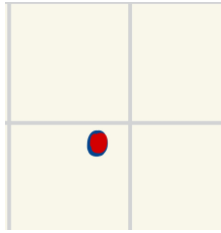Expected Result: false
Code Result: false
Test Result: pass

Case 4

Circle c1 = new Circle(new Point(2, 3), 5);
Rectangle r4 = new Rectangle(7, 15, 5, 0)
Expected Result: false
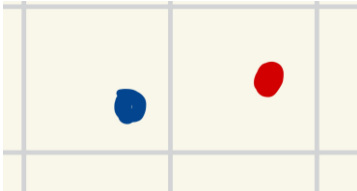Code Result: true
Test Result: fail

Point

- **Test of Point.intersect(Point)**

  Case 1

  Point p1 = new Point(5, 7);
  Point tp1 = new Point(5, 7);
  Expected Result: true
  Code Result: true
  Test Result: pass
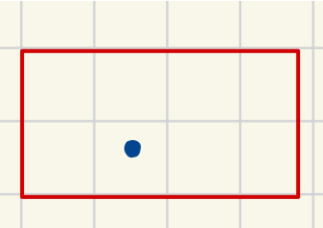
  Case 2

  Point p1 = new Point(5, 7);
  Point tp2 = new Point(7, 5);
  Expected Result: false
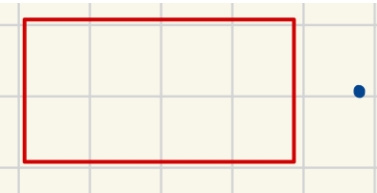 Code Result: false
  Test Result: pass
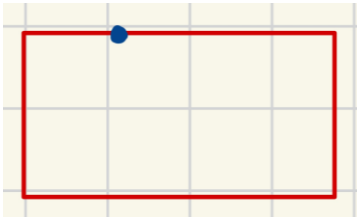
- **Test of Point.intersect(Rectangle)**

  Case 1

  Point p1 = new Point(2, 2);
  Rectangle r1 = new Rectangle(0, 5, 7, 0);
  Result: true
  Code Result: true
  Test Result: pass

  Case 2

  Point p1 = new Point(2, 2);
  Rectangle r2 = new Rectangle(5, 10, 12, 5);
  Expected Result: false
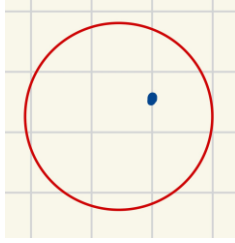 Code Result: false
  Test Result: pass

  Case 3

  Point p1 = new Point(2, 2);
  Rectangle r3 = new Rectangle(2, 5, 3, 0);
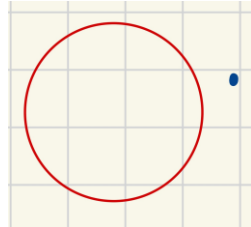 Expected Result: false
  Code Result: false
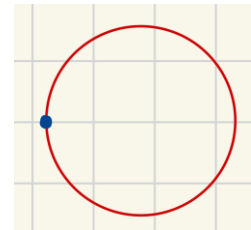 Test Result: pass

- **Test of Point.intersect(Circle)**

Case 1

Point p1 = new Point(2, 2);
Circle c1 = new Circle(new Point(2, 3), 5);
Result: true
Code Result: true
Test Result: pass

Case 2

Point p1 = new Point(2, 2);
Circle c2 = new Circle(new Point(9,3), 5);
Expected Result: false
Code Result: false
Test Result: pass

Case 3

Point p1 = new Point(2, 2);
Circle c3 = new Circle(new Point(7,2), 5);
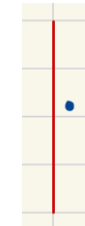Expected Result: false
Code Result: false
Test Result: pass

- **Test of Point.intersect(LineSeg)**

Case 1

Circle c1 = new Circle(new Point(2, 3), 5);
LineSeg l1 = new LineSeg(new Point(0, 0), new Point(4, 4));
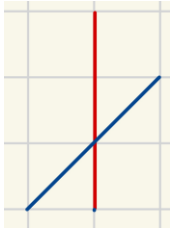Result: true
Code Result: true
Test Result: pass

Case 2

Circle c1 = new Circle(new Point(2, 3), 5);
LineSeg l2 = new LineSeg(new Point(4, 0), new Point(4, 4));
Expected Result: false
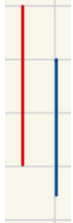Code Result: false
Test Result: pass

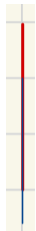## LineSeg

- **Test of LineSeg.intersect(LineSeg)**

Case 1

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));
LineSeg tl1 = new LineSeg(new Point(0, 1), new Point(4, 5));
Expected Result: true
Code Result: true
Test Result: pass

Case 2

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));
LineSeg tl2 = new LineSeg(new Point(5, 0), new Point(5, 8));
Expected Result: false
Code Result: false
Test Result: pass

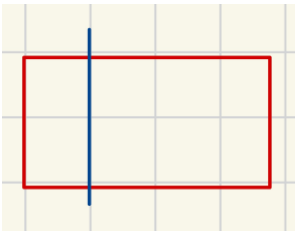Case 3

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));
LineSeg tl3 = new LineSeg(new Point(2, 0), new Point(2, 10));
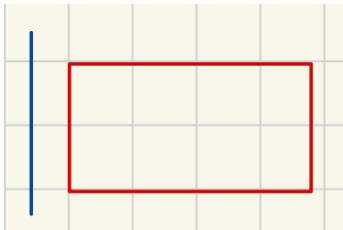Expected Result: true
Code Result: true
Test Result: pass

- **Test of LineSeg.intersect(Rectangle)**

Case 1
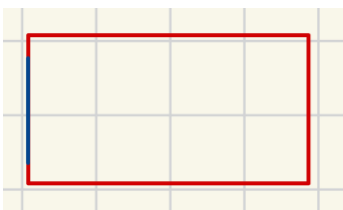

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));
Rectangle r1 = new Rectangle(0, 5, 7, 0);
Result: true
Code Result: true
Test Result: pass

Case 2

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));
Rectangle r2 = new Rectangle(5, 10, 12, 5);
Expected Result: false
Code Result: false
Test Result: pass

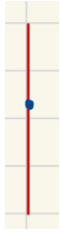Case 3

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));
Rectangle r3 = new Rectangle(2, 10, 4, 0);
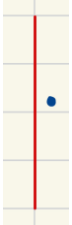Expected Result: false
Code Result: true
Test Result: fail

- **Test of LineSeg.intersect(Point)**

Case 1

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));

Point p1 = new Point(2, 4);
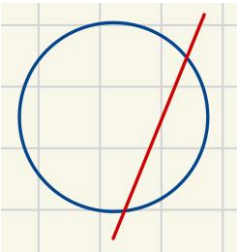
Result: true

Code Result: true

Test Result: pass

Case 2

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));

Point p2 = new Point(7, 5);

Expected Result: false

Code Result: false

Test Result: pass
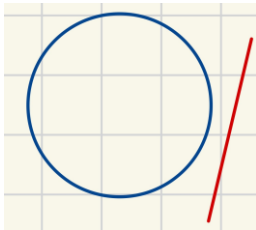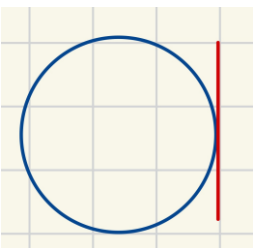
- **Test of LineSeg.intersect(Circle)**

Case 1

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));

Circle c1 = new Circle(new Point(2, 3), 5);

Result: true

Code Result: true

Test Result: pass

Case 2

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));

Circle c2 = new Circle(new Point(9,3), 5);

Expected Result: false
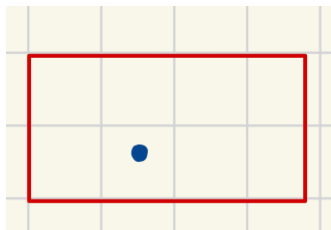
Code Result: false

Test Result: pass

Case 3

LineSeg l1 = new LineSeg(new Point(2, 2), new Point(2, 8));

Circle c3 = new Circle(new Point(5,4), 3);

Expected Result: false
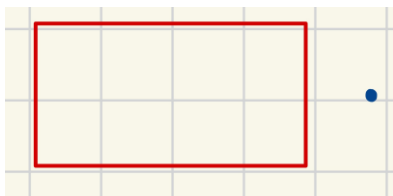
Code Result: false

Test Result: pass

Rectangle

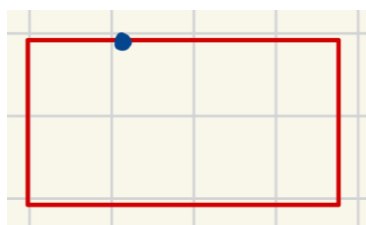- **Test of Rectangle.intersect(Point)**

Case 1

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Point p1 = new Point(2, 4);
Expected Result: true
Code Result: true
Test Result: pass

Case 2

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Point p2 = new Point(7, 5);
Expected Result: false
Code Result: false
Test Result: pass

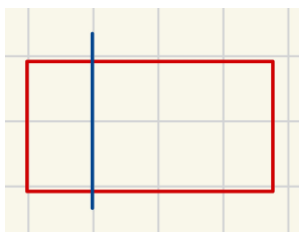### Case 3

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Point p3 = new Point(0, 2);
Expected Result: false
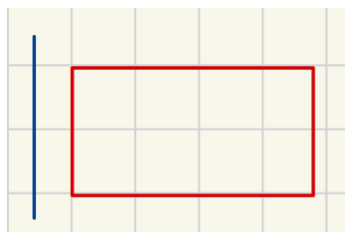Code Result: false
Test Result: pass
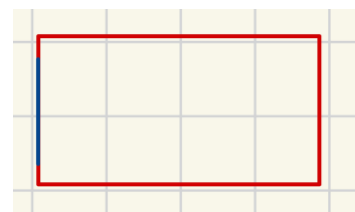
- **Test of Rectangle.intersect(LineSeg)**

Case 1

Rectangle r1 = new Rectangle(0, 5, 7, 0);
LineSeg l1 = new LineSeg(new Point(0, 0), new Point(6, 5));
Result: true
Code Result: true
Test Result: pass

Case 2

Rectangle r1 = new Rectangle(0, 5, 7, 0);
LineSeg l2 = new LineSeg(new Point(6, 0), new Point(6, 8));
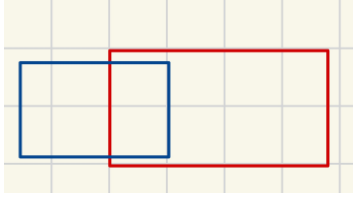Expected Result: false
Code Result: false
Test Result: pass

Case 3

Rectangle r1 = new Rectangle(0, 5, 7, 0);
LineSeg l3 = new LineSeg(new Point(2, 0), new Point(2, 10));
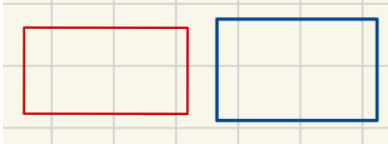Expected Result: false
Code Result: true
Test Result: fail
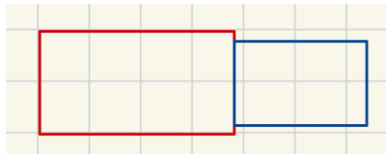
- **Test of Rectangle.intersect(Rectangle)**

Case 1

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Rectangle tr1 = new Rectangle(3, 6, 5, 1);
Result: true
Code Result: true
Test Result: pass

Case 2

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Rectangle tr2 = new Rectangle(6, 8, 7, 0);
Expected Result: false
Code Result: false
Test Result: pass
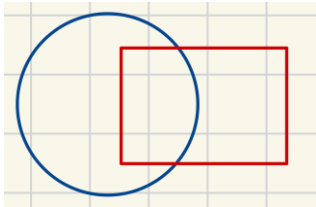
Case 3

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Rectangle tr3 = new Rectangle(0, 5, 7, 0);
Expected Result: false
Code Result: true
Test Result: fail
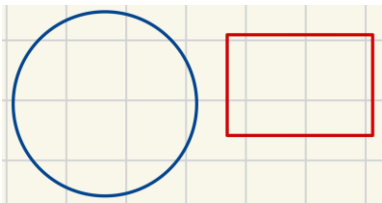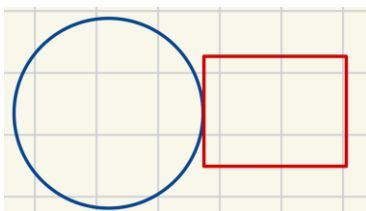
- **Test of Rectangle.intersect(Circle)**

Case 1

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Circle c1 = new Circle(new Point(9, 3), 5);
Expected Result: false
Code Result: false
Test Result: pass

Case 2

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Circle c2 = new Circle(new Point(12, 3), 5);
Expected Result: false
Code Result: false
Test Result: pass

Case 3

Rectangle r1 = new Rectangle(0, 5, 7, 0);
Circle c3 = new Circle(new Point(10, 3), 5);
Expected Result: false
Code Result: true
Test Result: fail