CSE101 - Introduction to Programming
Lab 6

Instructions:

1. Think of the logic for the sub-tasks and then code them.
2. Upload the zip folder with the name rollno_lab6.zip containing the a1.py, a2.py and test.py.

You are given a module a1.py containing 2 classes Point and Rectangle.
Point class has 2 data members:

1. x: x-coordinate of the point
2. y: y-coordinate of the point

Rectangle has 2 data members which are the coordinates of one of the diagonals:

1. bottom_left_point: point object
2. top_right_point: point object

Create a separate module a2.py and complete the following tasks and import the file containing the 2 classes:

Task 1:
Create a function **checkCollinearity(p1, p2, p3)**: This function takes 3 point objects as arguments, p1, p2 and p3, of Point class and checks if these 3 points are collinear or not. You have to return True or False.

Task 2:
Create a function **checkPointInRect(p, r)**: This function takes a point p and a rectangle r as arguments and returns True if the point p lies inside of the rectangle r.

Task 3:
Create a function **findIntersection(r1, r2)**: This function takes 2 rectangles as arguments and returns an object of the Rectangle class which is the intersection of the given 2 rectangles. (**Hint**: Think of using the function checkPointsInRect(p, r))

Now, make a new file named as “test.py” to test the above tasks using **introcs**. Check at least 2 test cases for each subtask. Try to think of corner cases. If all the test cases pass, print “DONE”.