Exercise 9.2. 1. For the following program, draw a stack diagram show- ing the state of the program just before distance returns. Include all variables and parameters and the objects those variables refer to.
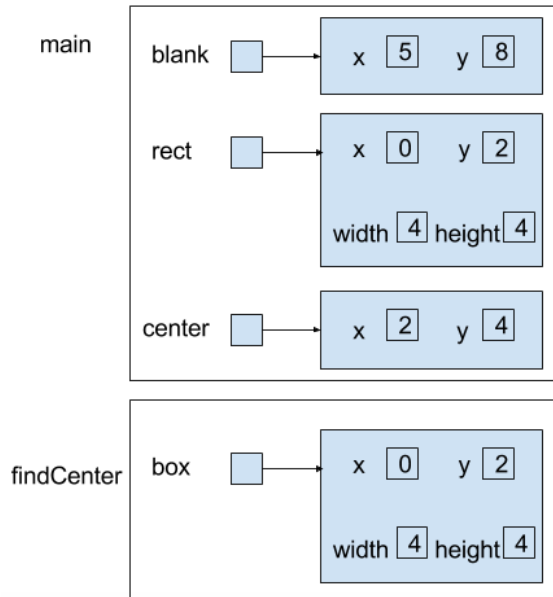
2. What is the output of this program? _5_

```java
public static double distance(Point p1, Point p2) {
    int dx = p1.x - p2.x;
    int dy = p1.y - p2.y;
    return Math.sqrt(dx*dx + dy*dy);
}
public static Point findCenter(Rectangle box) {
    int x = box.x + box.width/2;
    int y = box.y + box.height/2;
    return new Point(x, y);
}
public static void main(String[] args) {
    Point blank = new Point(5, 8);
    Rectangle rect = new Rectangle(0, 2, 4, 4);
    Point center = findCenter(rect);
    double dist = distance(center, blank);
    System.out.println(dist);
}
```
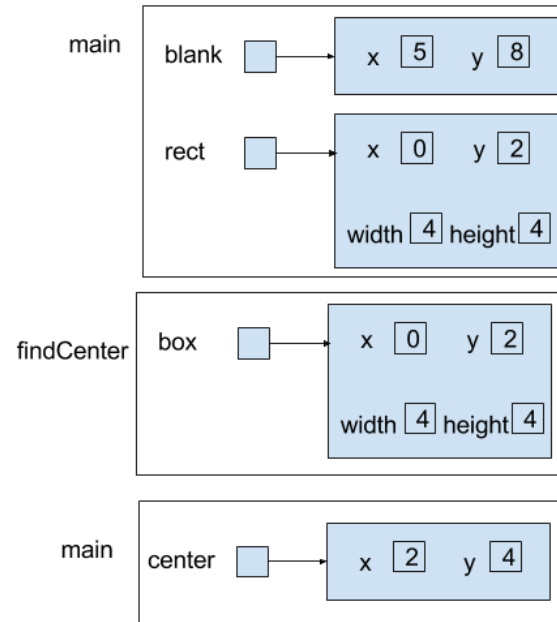
Which one is the answer for (1)?

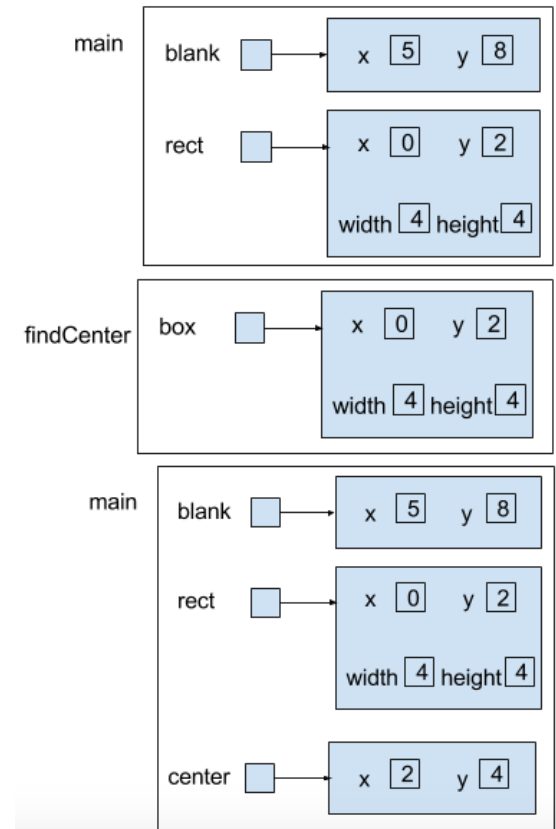| A	B	C
All the contents of main first and then the findCenter	The first 2 lines of main happen, then findCenter, then the Point center is created.	All the contents of main happen up to line 3, then findCenter happens, and then the Point center is added.

A

main
blank → x 5 y 8

rect → x 0 y 2 width 4 height 4

center → x 2 y 4

findCenter
box → x 0 y 2 width 4 height 4

B

main
blank → x 5 y 8

rect → x 0 y 2 width 4 height 4

findCenter
box → x 0 y 2 width 4 height 4

main
center → x 2 y 4

C

main
blank → x 5 y 8

rect → x 0 y 2 width 4 height 4

findCenter
box → x 0 y 2 width 4 height 4

main
blank → x 5 y 8

rect → x 0 y 2 width 4 height 4

center → x 2 y 4

What terms do you use to explain this?