

CMSC 113: Computer Science I Tracing Paper Exercises

Problems 1-5 use the following two files, both with one line missing. The missing lines will be filled in differently for each problem.

MainProgram.java:

```
import acm.program.*;

public class MainProgram extends GraphicsProgram
{
    public void run()
    {
        CompoundObject co = new CompoundObject();

        /* THIS LINE TO BE FILLED IN BELOW */

        add(co);
    }
}
```

CompoundObject.java:

```
import acm.graphics.*;

public class CompoundObject extends GCompound
{
    public CompoundObject()
    {
        GRect rect =
            /* THIS LINE TO BE FILLED IN BELOW */

        add(rect);
    }
}
```

For the problems 6-10, consider these two files, also with portions of lines missing:

MainProgram2.java:

```
/* Other than the use of CompoundObject2, this is the same as
MainProgram.java, above. */
public class MainProgram2 extends GraphicsProgram
{
    public void run()
    {
        CompoundObject2 co2 = new CompoundObject2();

        /* THIS LINE TO BE FILLED IN BELOW */
        co2.doIt();

        add(co2);
    }
}
```

CompoundObject2.java:

```
public class CompoundObject2 extends GCompound
{
    public CompoundObject2()
    {
        GRect rect =
            /* THIS LINE TO BE FILLED IN BELOW AS LINE 1 */

        add(rect);
    }

    public void doIt()
    {
        /* THIS LINE TO BE FILLED IN BELOW AS LINE 2 */
    }
}
```

For each problem below, write in the coordinates of the upper-left corner of the rectangle as it would appear in the applet, taking into account the location of the rectangle on the tracing paper and the location of the tracing paper on the applet. You may show your work to the right of the problem for possible partial credit.

1. MainProgram.java: `co.setLocation(95, 95);`
CompoundObject.java: `new GRect(0, 0, 20, 20);`

Location on applet: (,)

2. MainProgram.java: `co.setLocation(50, 50);`
CompoundObject.java: `new GRect(0, 0, 20, 20);`

Location on applet: (,)

3. MainProgram.java: `co.setLocation(95, 95);`
CompoundObject.java: `new GRect(-10, -10, 20, 20);`

Location on applet: (,)

4. MainProgram.java: `co.setLocation(0, 0);`
CompoundObject.java: `new GRect(100, 100, 20, 20);`

Location on applet: (,)

5. MainProgram.java: `co.setLocation(95, 95);`
CompoundObject.java: `new GRect(85, 85, 20, 20);`

Location on applet: (,)

6. MainProgram2.java: `co2.setLocation(95, 95);`
CompoundObject2.java, first missing line: `new GRect(0, 0, 20, 20);`
CompoundObject2.java, second missing line: `rect.setLocation(10, 10);`

Location on applet: (,)

7. MainProgram2.java: `co2.setLocation(95, 95);`
CompoundObject2.java, first missing line: `new GRect(0, 0, 20, 20);`
CompoundObject2.java, second missing line: `setLocation(10, 10);`

Location on applet: (,)

8. MainProgram2.java: `co2.setLocation(0, 0);`
CompoundObject2.java, first missing line: `new GRect(85, 85, 20, 20);`
CompoundObject2.java, second missing line: `setLocation(0, 0);`

Location on applet: (,)

9. MainProgram2.java: `co2.setLocation(95, 95);`
CompoundObject2.java, first missing line: `new GRect(0, 0, 20, 20);`
CompoundObject2.java, second missing line: `rect.setLocation(-10, -10);`

Location on applet: (,)

10. MainProgram2.java: `co2.setLocation(95, 95);`
CompoundObject2.java, first missing line: `new GRect(-10, -10, 20, 20);`
CompoundObject2.java, second missing line: `rect.setLocation(getX(), getY());`

Location on applet: (,)