

1 Static Shock

Write what the main method will print out once it is executed. It might be helpful to draw box and pointer diagrams to keep track of variables.

```
1 public class Shock {
2     public static int bang;
3     public static Shock baby;
4     public Shock() {
5         this.bang = 100;
6     }
7     public Shock (int num) {
8         this.bang = num;
9         baby = starter();
10        this.bang += num;
11    }
12    public static Shock starter() {
13        Shock gear = new Shock();
14        return gear;
15    }
16    public static void shrink(Shock statik) {
17        statik.bang -= 1;
18    }
19    public static void main(String[] args) {
20        Shock gear = new Shock(200);
21        System.out.println(gear.bang);      -----
22        shrink(gear);
23        shrink(starter());
24        System.out.println(gear.bang);    -----
25    }
26 }
```

2 Horse-o-Scope

Given the following program, draw out the box and pointer diagram that results from executing the `inputArray` method. What is the output printed by the program? (Summer '16, MT1)

```
1 public class Horse {
2     Horse same;
3     String jimmy;
4
5     public Horse(String lee) {
6         jimmy = lee;
7     }
8
9     public Horse same(Horse horse) {
10        if (same != null) {
11            Horse same = horse;
12            same.same = horse;
13            same = horse.same;
14        }
15        return same.same;
16    }
17
18    public static void main(String[] args) {
19        Horse horse = new Horse("youve been");
20        Horse cult = new Horse("horsed");
21        cult.same = cult;
22        cult = cult.same(horse);
23        System.out.println(cult.jimmy);
24        System.out.println(horse.jimmy);
25    }
26 }
```

Program Output:

3 Give em the 'Ol Switcheroo

For each function call in the main method, write out the x and y values of both foobar and baz after executing that line. (Spring '15, MT1)

```

1  public class Foo {
2      public int x, y;
3
4      public Foo (int x, int y) {
5          this.x = x;
6          this.y = y;
7      }
8
9      public static void switcheroo (Foo a, Foo b) {
10         Foo temp = a;
11         a = b;
12         b = temp;
13     }
14
15     public static void fliperoo (Foo a, Foo b) {
16         Foo temp = new Foo(a.x, a.y);
17         a.x = b.x;
18         a.y = b.y;
19         b.x = temp.x;
20         b.y = temp.y;
21     }
22
23     public static void swaperoo (Foo a, Foo b) {
24         Foo temp = a;
25         a.x = b.x;
26         a.y = b.y;
27         b.x = temp.x;
28         b.y = temp.y;
29     }
30
31     public static void main (String[] args) {
32         Foo foobar = new Foo(10, 20);
33         Foo baz = new Foo(30, 40);
34         switcheroo(foobar, baz);    foobar.x: ___ foobar.y: ___ baz.x: ___ baz.y: ___
35         fliperoo(foobar, baz);     foobar.x: ___ foobar.y: ___ baz.x: ___ baz.y: ___
36         swaperoo(foobar, baz);     foobar.x: ___ foobar.y: ___ baz.x: ___ baz.y: ___
37     }
38 }

```