

1. Answer the following questions using the class definitions below.

```
public class Sample
{
    public static boolean b1;
    private static boolean b2;
    public boolean b3;
    private boolean b4;
    // Constructor omitted.
}
```

```
public class SampleApp
{
    public static void main(String args[])
    {
        Sample s1 = new Sample();
        Sample s2 = new Sample();
    }
}
```

(a) Of the variables `b1`, `b2`, `b3`, `b4`, which are visible in `main`?

(b) Of the variables `b1`, `b2`, `b3`, `b4`, which are associated with *objects* of the `Sample` class?

2. What will be printed when the following code executes?

```
public static void main(String[] args)
{
    int num1 = 7;
    int[] numbers = {1, 2, 3};
    int[] numbersA = numbers;

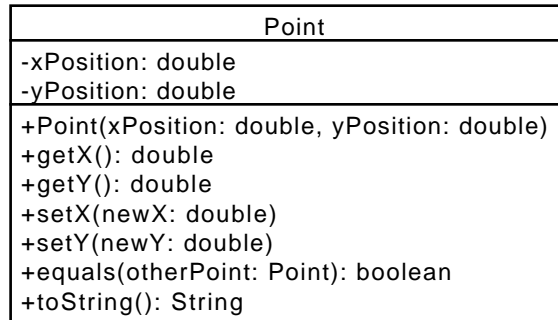
    timesTwo(num1);
    timesTwo(numbers);

    System.out.println("A " + num1);
    System.out.println("B " + numbers[0]);
    System.out.println("C " + numbersA[0]);
}

public static void timesTwo(int value)
{
    System.out.println("D " + value);
    value = value * 2;
    System.out.println("E " + value);
}

public static void timesTwo(int[] values)
{
    for (int i = 0; i < values.length; i++)
    {
        values[i] = values[i] * 2;
    }
}
```

The questions below will refer to the `Point` class illustrated in the following UML diagram:



3. Write a statement or expression satisfying the requirements below. You may make use of the `Point` class diagrammed above.

(a) A statement that declares `points` to be an array of `Points`.

(b) A statement that instantiates a `Point` array of length 4 , and assigns the result to `points`.

(c) A for loop that populates the array `points` with four different `Point` objects, each located at position (0,0).

4. Provide a Java implementation of the `Point` class diagrammed above.