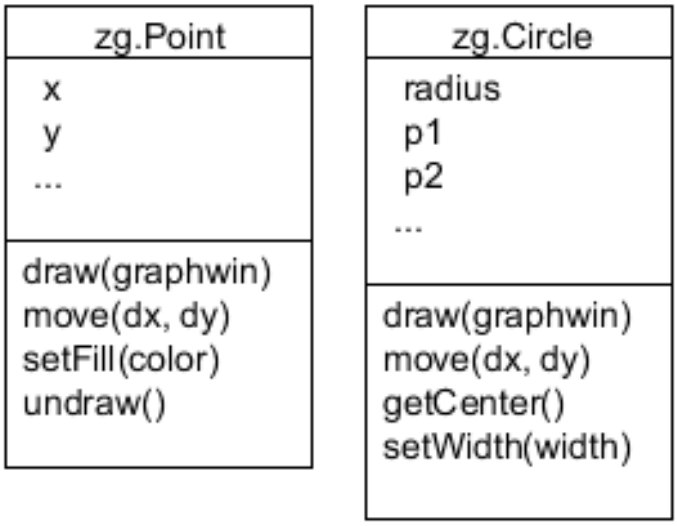
**Name:** _____ **Section: 2 (7th-8th) or 3 (9th-10th)**

Do the reading assigned below and answer these questions either while reading or afterwards (your choice). ***Not sure of an answer?*** Ask your instructor to explain ***at the beginning of the next class session***. You can then fill in your answer, still for full credit. (But no fair doing that unless you attempted the question first.)

**Reading for this quiz: Sections 4.2 through 4.4 of Chapter 4 of your textbook (Zelle)**




1. Each diagram to the right is called a

   _____

2. ***zg.Point*** and ***zg.Circle*** are called

   _____(hint: begins with a "c").

3. ***Instances*** of ***zg.Point*** and ***zg.Circle*** are also called

   _____ (hint: begins with an "o").

4. What ***instance variables*** are shown for the ***zg.Point*** class in the above UML class diagram?

5. What ***methods*** are shown for the ***zg.Circle*** class in the above UML class diagram?

6. Briefly explain what the term ***instance variable*** means. That is, what is an *instance variable*?

7. Briefly explain what the term ***method*** means. That is, what is a *method*?

8. Write statement(s) that construct a ***zg.Circle*** at (50, 30) with radius 100 and assigns a variable **`c1`** to refer to the constructed ***zg.Circle***.

9. Write a statement that causes the above variable **`c1`** to be drawn on a ***zg.GraphWin*** called **`w`**.

10. Write a statement that constructs a ***zg.Rectangle*** using the same two points that are stored with the above variable **`c1`**. (Use *instance variables* in your answer, ***not*** numbers.)

(continues on the next page)

11. Suppose that the Dog class is defined in a module called ***animals***. Fill in the blank in the following statement so that it constructs a Dog.

```
d = animals._____()
```

12. An ***accessor*** method, also known as a ***getter***, is a method that (fill in the blank)

_____.

13. A ***mutator*** method, also known as a ***setter***, is a method that (fill in the blank)

_____.

14. Consider the code snippet shown to the right.

```
window = zg.GraphWin('bob', 600, 400)
circle1 = zg.Circle(zg.Point(30, 10), 5)
circle1.draw(window)
```

   a. How many Zellegraphics objects are explicitly constructed by that snippet (when it runs)?

   **b.** Suppose we add the following statement: `circle2 = circle1`

   Does this statement construct a new circle? **Yes** **No** (circle your choice)

   c. Write a statement that would set ***`circle3`*** to a ***clone*** of ***`circle1`***.

***If you have other questions about Chapter 4, ask them at your next class session!***