

Name: _____

Range expressions:

1. What is the output of the following code snippet?

```
for k in range(200, 215):  
    print(k)
```

2. Modify the code above so that it also prints the 215 as part of the output.
3. Joe wants his **for** loop to output the numbers counting DOWN from 100 to *n*, inclusive, for some number *n* smaller than 100. He writes:

```
for k in range(100, n, -1):  
    print(k)
```

He correctly remembered the step of -1, but made another small bug. Find and fix it.

Box and pointer diagrams:

4. Draw a box-and-pointer diagram for the following statements. Recall that you should cross out the arrows rather than erase them:

```
x = 17  
x = x + 5
```

5. Draw a box-and-pointer diagram for the following statements.

```
p = rg.Point(50, 70)  
p.x = 25
```

6. Draw a box-and-pointer diagram for the following statements.

```
p = rg.Point(50, 70)  
x2 = p.x  
p.x = 25
```

What is the value of **x2** after this code runs? _____

Use your box and pointer diagram to help.

(Suggestion: ask for the answer to the above and use it to check your diagram.)

(This quiz continues on the next page.)

Implementing Classes:

7. What gets printed when the code to the right runs?
8. Every object in Python has **two** things: what are they?
(Put a mark by TWO of the following items.)

_____ A type

_____ A value

_____ An accumulator

```
class Point(object):
    def __init__(self, x, y):
        self.x = x
        self.y = y

def main():
    point = Point(1, 2)
    blah(point)
    print(point.x, point.y)

def blah(point):
    point.x = 999
    point = Point(33, 44)

main()
```

9. In object-oriented programming, you can create custom classes. What is a **class**?
- _____ A collection of students _____ A custom type _____ A socioeconomic group
10. What is the name of the **constructor method** in Python? (don't forget the underscores)
11. Recall that classes have a *name*, *instance variables*, and *methods*. Here (below and to the right) is the definition of part of a simple class that you saw in the video:

- a. Give an example from the code of an **instance variable**:
- b. Give an example from the code of a **method**:
- c. What is the **name** of the class? _____
- d. What **keyword** was used to define the class? _____

```
class Point(object):
    def __init__(self, x, y):
        self.x = x
        self.y = y

    def move_by(self, dx, dy):
        # Location 1
        self.x = self.x + dx
        self.y = self.y + dy
```

12. Continuing the previous problem (with its **Point** class), consider the two lines of code shown to the right. When those two lines of code run, the execution of the second line brings us to Location 1 (see the *Point* class above to find Location 1). **At Location 1, what are the values of:**

```
p = Point(40, 50)
p.move_by(1, 2)
```

self _____

dy _____ **self.y** _____