Name: _____ **Section:** 1 2 3 4

1 = Mutchler, 1st-2nd periods. **2 =** Mutchler, 3rd-4th periods. **3 =** Anderson, 7th-8th periods. **4 =** Anderson, 9th-10th periods.

Use this quiz to help make sure you understand the videos/reading. ***Answer all questions.*** Make additional notes as desired. ***Not sure of an answer?*** Ask your instructor to explain in class and revise as needed then. **Please print two-sided.**

Throughout, where you are asked to "circle your choice", you can underline or circle it (whichever you prefer).

From Piazza (the course discussion site):

1. By now you should have visited Piazza, at:

   http://piazza.com/rose-hulman/fall2013/csse120

   Visit Piazza to answer the following question:

   What is the Yogi Berra statement that was quoted on the CSSE 120 Piazza site Sunday afternoon (with a claim that it is relevant to robotics)?

Textbook Reading: ***Section 3.7 – Boolean Variables and Operators*** (pages 106 - 109)

2. Suppose that `x` and `y` are variables whose values are numbers. Consider the following:

   ```
   x < y
   ```

   The value of the above expression might be: (circle ***ALL*** that are possible)

   `1` `0` `True` `False` `true` `false` `'true'` `'false'`

3. Suppose that `x` and `y` are variables whose values are integers. Write a Boolean expression that you could use to test whether:

   a. Both of them are zero? _____

   b. At least one of them is zero? _____

   c. Exactly one of them is zero? _____

   d. Neither of them is zero? _____

   Hint: The best answer to part (a) is: `x == 0 and y == 0`

4. Suppose that `frozen` is a variable whose value is a Boolean value.
   Then the expression `not not frozen`
   evaluates to the same thing as the shorter expression: _____

5. What is the advantage of using the type **`bool`** rather than strings **`'False'`** / **`'True'`** or integers **`0`** / **`1`**?

6. Suppose that the value of **`b`** is **`False`** and the value of **`x`** is **`3`**. For each of the following expressions, what is its value?

a.	`b and (x == 3)`	**True**	**False**	(circle your choice)
b.	`b and (x == 4)`	**True**	**False**	(circle your choice)
c.	`b or (x == 3)`	**True**	**False**	(circle your choice)
d.	`b or (x == 4)`	**True**	**False**	(circle your choice)
e.	`(not b) and (x == 3)`	**True**	**False**	(circle your choice)
f.	`(not b) or (x == 3)`	**True**	**False**	(circle your choice)
g.	`b and (x != 3)`	**True**	**False**	(circle your choice)
h.	`b or (x != 3)`	**True**	**False**	(circle your choice)
i.	`b and (x != 4)`	**True**	**False**	(circle your choice)
j.	`b or (x != 4)`	**True**	**False**	(circle your choice)
k.	`(not b) and (x != 3)`	**True**	**False**	(circle your choice)
l.	`(not b) or (x != 3)`	**True**	**False**	(circle your choice)

7. Consider the compound statement shown to the right. Assume that **`b`** is a variable that contains a Boolean value and **`n`** is a variable that contains an integer value. Write a *simpler* (non-compound, single-line) statement that is ***equivalent*** to the statement shown to the right.

```
if n == 0:
    b = True
else:
    b = False
```

8. For each of the following expressions, what is its value?

a.	`(1 + 2) == 3`	**True**	**False**	**Difficult to say for sure**	(circle your choice)
b.	`(0.1 + 0.2) == 0.3`	**True**	**False**	**Difficult to say for sure**	(circle your choice)
c.	`( math.sin(math.pi)) == 0`	**True**	**False**	**Difficult to say for sure**	(circle your choice)
d.	`(1 / 10) + (9 / 10) == 1`	**True**	**False**	**Difficult to say for sure**	(circle your choice)
e.	`(3 // 1) == (9 // 3)`	**True**	**False**	**Difficult to say for sure**	(circle your choice)