

Name: _____

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. **Turn this in via the Session 7 Dropbox on our Moodle site.**

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

From Piazza (the course discussion site):

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

<http://piazza.com/rose-hulman/summer2014/csse120>

Visit Piazza to answer the following question:

What is the Yogi Berra statement that was quoted on the CSSE 120 Piazza site recently (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)**
(The parentheses are optional here, since the **and** operator has higher “precedence” than the **==** operator.)

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** (with possible values **True** and **False**) 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) |