Take a look over the following questions. This lecture should help you answer each of them. We recommend you write down answers as you learn them.

1. what are the three ways we'll run Python code this semester?
interactive mode, script mode, and notebook "mode"

2. which way of running Python requires us to use print(...) to see results?
script mode (and Python Tutor tool)

3. four common types in Python are:
- int *INTEGER / WHOLE NUMBER*
- float *DECIMAL*
- str *STRING*
- bool *BOOLEAN*

4. which operators are highest precedence (box them)? Lowest (circle them)?
- (logical) *LOWEST*
- comparison
- [mathematical] *HIGHEST*

5. how can we multiply two numbers in Python?
- 2 x 3 *DOESN'T WORK*
- (2 * 3)
- (2)(3) *DOESN'T WORK*

6. how do we check whether two values are equal to each other in Python?
- 1 + 1 = 2 *SINGLE = ASSIGNMENT OPERATOR*
- (1 + 1 == 2) *DOUBLE == COMPARISON OPERATOR*
- 1 + 1 equals 2

7. how can we print this message? [circle all that apply]
the dog said "roof" *→ Missing quotation! DOESN'T WORK*
- *DOESN'T WORK* print(the dog said "roof")
- print("the dog said "roof"") *→ Cannot use double quotations inside double quotations*
- (print('the dog said "roof"')
- print("the dog said \"roof\"")) *can use combination of single and double quotations*

can use \ to escape special meaning of the double quotation

8. where should we add parentheses to get 16?
(-4)** 2

9. what is the value of the following?
not not True *True*

Modular Arithmetic: what do each of the following evaluate to?

```
0 % 3   0
1 % 3   1
2 % 3   2
3 % 3   0
4 % 3   1
5 % 3   2
6 % 3   0
```

```
11 / 4   2.75
11 // 4  2
11 % 4   3
```

(3 - 1 + 12) % 12 + 1
$$(2 + 12) \% 12 + 1$$
$$14 \% 12 + 1$$
$$2 + 1 \longrightarrow \boxed{3}$$

(3 - 1 + 14) % 12 + 1
$$(2 + 14) \% 12 + 1$$
$$16 \% 12 + 1$$
$$4 + 1 \longrightarrow \boxed{5}$$

Boolean Logic: what do each of the following evaluate to?

2 > 1 $\boxed{True}$

2 > 1 == True   True == True → $\boxed{True}$

not (**3** < 1 or **3** > 10)   not (False or False) → not (False) → $\boxed{True}$

not (**3** < 1) and not (**3** > 10)   not (False) and not (False) → True and True
↳ $\boxed{True}$

3 >= 1 and **3** <= 10   True and True → $\boxed{True}$

* 1+2 == 1 or 1+2 == 2 or 1+2 == 3 or 1+2 == 4 or 1+2 == 5
False   or   False   or   True .... REST IS NOT EVALUATED → $\boxed{True}$

* 1+1 == 2 and 2+2 == 4 and 3+3 == 100 and 4+4 == 8
True   and True   and False ... REST IS NOT EVALUATED → $\boxed{False}$

* SHORT- CIRCUITING :
    - expressions with OR's : ONLY EVALUATE UNTIL ONE PART BECOMES True
    -         "   AND's :   "   "   "   "   "   False