

Topic 2: Variables, Expressions, and Spreadsheets

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- ① Homework 2 is posted:
 - ① Due at 11pm (CST) this Friday (June 25)
 - ② Covers two topics:
 - ① Topic 2 - Today's lecture and your last reading
 - ② Topic 3 - Wednesday's lecture.
 - ③ **Start homework early**
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Muddiest Points



Poll Question: Spreadsheets

If I copy the contents of B2 to C4 what formula will be in C4?

- ① $=\$A1 + 2$
- ② $=\$A2 + 2$
- ③ $=\$A3 + 2$
- ④ $=\$C1 + 2$
- ⑤ $=\$C2 + 2$
- ⑥ $=\$C3 + 2$

	A	B	C
1	10		
2		$=\$A1+2$	
3			
4			

Poll Question: Python Naming

Which are legal python names?

- ____
 - 12monkeys
 - l33tCoder42
- ① 1 and 2
 - ② 1 and 3
 - ③ 2 only
 - ④ 2 and 3
 - ⑤ 1, 2, and 3

Poll Question: Program Tracing

What is the value of y after this code executes?

$$x = 2$$
$$y = x + 3$$
$$x = 5$$

- 1 2
- 2 3
- 3 5
- 4 8
- 5 10

Poll Question: Program Tracing

What get outputted to the screen as a result of running the following program if the user types in 5?

```
x = input(Enter a number: )  
y = x + 3  
print(y)
```

- ① TypeError
- ② SyntaxError
- ③ 53
- ④ 8

Poll Question: Program Tracing

Result of running this code if the user types in 2 and 10?

```
x = int(input())  
y = int(input())  
z = x + y  
print(z)
```

- ① TypeError
- ② SyntaxError
- ③ 12
- ④ 210

Poll Question: Spreadsheets

What will be the expression when the cell at B1 is copied to D4?

① $=\$C\$1+\$C2$

② $=\$A\$1+\$D4$

③ $=\$A\$5+\$A2$

④ $=\$A\$1+\$A4$

⑤ $=\$A\$1+\$A5$

	A	B	C	D
1	10	$=\$A\$1+\$A2$		
2	2			
3	1			
4	0			
5	-1			

Poll Question: Whitespace

Which of the following are considered whitespace?

- ① Spaces
- ② Tabs
- ③ Newlines
- ④ Spaces and Tabs
- ⑤ Spaces, Tabs, and Newlines

Poll Question: Whitespace

Which of the following are considered whitespace?

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Whitespace is any character that takes up vertical or horizontal space but does not produce an otherwise visible mark.

Topic Review: Escape Character

- ① Treat backslash(\) as a special character
- ② \ means that the character *immediatly* following it should be treated differently.
 - ① \' and \" escape quotes within a string.
 - ② \t encodes a tab.
 - ③ \n encodes a new line.
 - ④ \\ encodes a slash.

Poll Question:

How many of the following characters are visible on the screen?

```
print( '\t\\n\\\t ' )
```

- 1 1
- 2 2
- 3 3
- 4 4
- 5 5

Poll Question: Python Literals

Which of the following is not a valid Python literal?

- ① 1.00001
- ② 1E-7
- ③ 1,097
- ④ -3.00
- ⑤ '\\\\'

Division, Floor Division, and Modulo

- 1 Division operator (`/`) gives best approximation to true result and *always return a float*.
- 2 Floor division (`//`) rounds down the closet whole number. The type of the result will follow the normal rules.
- 3 Modulo operator(`%`) performs a division and returns the remainder. The type of the result will always be the same.
- 4 For any numbers `x` and `y`, the following equality holds:
$$(y == (y // x) * x + (y \% x))$$

Poll Question: More Math Operators

Which computes how many (whole) apples I can give to each friend?

- ❶ `num_friends / num_apples`
- ❷ `num_apples / num_friends`
- ❸ `num_friends // num_apples`
- ❹ `num_apples // num_friends`
- ❺ `num_friends % num_apples`
- ❻ `num_apples % num_friends`

Order of Operations in Python

- Parentheses precedence
- Exponentiation
- Positive and negative
- Multiplication, Division, Modulo
- Addition, Subtraction precedence

Highest



Lowest

Note: Python evaluates from left to right within a precedence level

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