

Clicker Groups			
Gabriel Simon	Peter Adler Asch	Ryan Gleklen	Row 1, right
Rand Zalzal	Lydia Smith	Katherine Moncure	Row 1, left
John Fabrizio	Ian Gilchrist	Xincheng (Tony) Li	Row 2, right
Carey Lyons	Ruthie Wittenberg	Keeley Hagenbuch	Row 2, right
Joel Miller	Hunter Zepeda	Jack Benson	Row 2, left
Katerina Walter	Krista Langhans	Sakina Lavingia	Row 2, left
Venkata Shiva Mandala	Michael Jacobs	Aaron (Shang Wei) Young	Row 3, right
Linnea Kirby	Eleanor Spielman-Sun	Sophia Tinger	Row 3, right
Kiran Melnyk	Randanno Tallini	Ethan Cohen	Row 3, left
Alicia Goshe	Mia Russell	Phoebe Anderson-Kline	Row 3, left
Connor Jackson	Santiago Gonzalez	Daniel Laufer	Row 4, right
Kirsten Vail	Claire Shank	Sol Solomon	Row 4, right
Robert Sohmer	Ben Shepherd	Kevin Barrett Kelly	Row 4, left
Emily Cohn	Olivia Fountain	Amy Campbell	Row 4, left
Ian Hankin	Max Bernstein	Ari Schwartz	Row 5, right
Rachel Schwartz	Annika Hansteen Izora	Matthew Loreti	Row 5, right
Kepler Mears	Kinori Rosnow	Charlie Perry	Row 5, left
Einav Silverstein	Adira Baum	Noah Margulis	Row 5, left
Simeon Deutsch	Nate Kirk	Evan Davies	Row 6, right
Nicholas Music	Griffin Jennings	John Burnett	Row 6, right
Peter Elgee	Arturo Octavio	Pete Sinn	Row 6, right
Jeremy Swack	Andrew Groble	Andrew Winslow	Row 6, left
Michael Orenstein	Joshua Hess	Melchior Maetzener	Row 6, left
Sam Meier	Eli Ferster	Gabe Smith	Row 6, left
Dan Lev	Cole Blouin	Zhaoxin (Josh) Hu	Row 7, right
Dan Howard	Brian Carney	Derek Palinski	Row 7, right
Alejandro Verdugo Guzman	Nick Care	Jamie Finucane	Row 7, right
Jordon O'Donnell	Kinsey Denney	Meredith Leung	Row 7, left
Jacob Farnsworth	Truman Braslaw	Bill Derrah	Row 7, left
Frederick Olsen	David Kahn	Owen McTigue	Row 7, left

CS 150: Statements

Please find your discussion group!

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Oberlin College

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Announcements

- Please don't get clickers from the science library
 - They belong to the physics department
- Clickers are extra credit until next Wednesday

What is a program?

- Sequence of instructions
 - Statements
- Sequential
 - For now

Syntax versus Semantics

- Syntax
 - The **structure** of the statements
- Semantics
 - The **meaning** of the statements

Assignment Statements: Syntax

- <variable> = <expression>

x, 6, iAmAVariable

- Example:

- $x = 7$

- $x = 4 + 3$

- compound

- $x = (4+2) + 0 + 10 - 3$

Assignment Statement: Semantics

1. Evaluate <expression>
2. Load that value into *memory* using name <variable>

Memory: x = 7

Name	Value
X	7

Code

```
y = 3 + 2 + 1
```

```
y = y + 2
```

At the end of this code, y will have what value assigned to it in memory?

A. 2

B. 6

C. 8

D. This code will cause an error.

E. I don't know.

~~A~~

$$y = 6$$
$$y = 6 + 2$$

$$y = 3 + 2 + 1$$

1. Evaluate the expression

– 6

2. Load that value into memory using the name
<variable>

Name	Value
y	6

$$y = y + 2$$

1. Evaluate the expression

– $6 + 2$

– 8

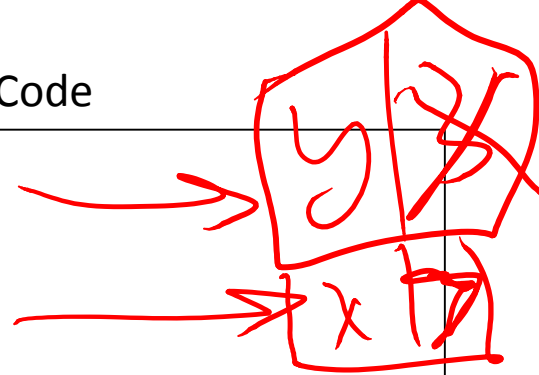
Name	Value
y	6

2. Load that value into memory using the name
<variable>

Name	Value
y	8

Code

```
y = 3
x = 7
y = 3 + 2 + 1
```



At the end of this code,
what will memory look like?

Name	Value
y	6

A

Name	Value
y	3
x	7
y	6

C

Name	Value
y	6
x	7

B

Name	Value
y	3
x	7

D

E. I don't know

Print Statements

- Syntax
 - print(<stuff>)
- Semantics
 - print <stuff> to the terminal

Code

```
print(3*5)  
print("3*5")
```

At the end of this code,
what will appear on the
terminal?

3*5

3*5

A

15

15

B

15

3*5

C

3*5

15

D

E. I don't know

*x=7
print(x)
print("x")*

Code

```
x = 7
print(x)
x = x + 1
print(x)
y = x - 3
print(x)
print(y)
```

At the end of this code,
what will appear on the
terminal?

7
8
5
5

A

7
8
8
5

B

7
7
7
4

C

D. This will cause an
error

E. I don't know

Code

```
x = 3
```

```
y = 7
```

```
x = y
```

```
y = x
```

```
print(x)
```

```
print(y)
```

At the end of this code,
what will appear on the
terminal?

3

7

A

7

3

B

3

3

C

7

7

D

E. I don't know

Code

```
x = 3
y = 7
temp = x
x = y
y = temp
print(x)
print(y)
```

At the end of this code,
what will appear on the
terminal?

x	3
y	7
temp	3

x	7
y	3
temp	3

3
7

A

7
3

B

3
3

C

7
7

D

E. I don't know

Simultaneous Assignment

x = 3
y = 7
x, y = y, x

- Syntax

– <var1>, <var2> = <exp1>, <exp2>

x = 7
y = 3

- Semantics

1. Evaluate <exp1>, <exp2>

2. Assign <exp1> to <var1> in memory, assign <exp2> to <var2> in memory

$$x = 4$$

$$y = 6$$

$$x, x = y, x$$

x	4
y	6
temp1	6
temp2	4

$$x = 4$$

$$y = 6$$

$$\text{temp1} = y$$

$$\text{temp2} = x$$

$$x = \text{temp1}$$

$$x = \text{temp2}$$

x	6

x	4

Code

```
x = 10-2*3  
print(x)
```

At the end of this code,
what will appear on the
terminal?

4

6

24

D. This will cause an
error

A

B

C

E. I don't know

Order of operations

10-6

Order of Operations

- Multiplication/Division, then Addition/Subtraction
- Can override using parenthesis
 - $x = (10-2)*3$ will set x equal to 24

Handwritten red annotations illustrating the order of operations for the expression $(10-2)*3$:

- A red circle highlights the subtraction $(10-2)$.
- A red line underlines the entire expression $(10-2)*3$.
- A red '3' is written above the multiplication sign.
- A red '2' is written below the subtraction result.
- A red '1' is written below the multiplication result.

Next Class

- Expressions, Types, and Loops
- Reading
 - 3.1-2, 3.5
- Lab 1 – Today and Tomorrow