CS 105: Introduction to Computer Programming (using JavaScript)
Variables, Assignment Statements and the draw() function callback.

Assignments:

Watch Khan Academy Videos
- Color
- Variables
- Animation

w3school: "if" statements

Lab 2: Bouncing Lines
Quiz: JavaScript Mathematics Operators

In the JavaScript programming language, the mathematics operators for addition, subtraction, multiplication and division are:

a) +, -, *, and /
b) +, -, x, and ÷
c) +, -, x, and ÷
d) +, -, x, and ≈
e) +, -, x, and ∇

A JavaScript Expression

- A JavaScript expression is made up of values and operators.

2 + 2
Storing Values in Variables

```javascript
var eggs = 15
var fizz = 10
eggs = eggs + fizz
eggs = eggs + fizz
```

In JavaScript, = is the assignment operator.

Quiz: What is the value of x when the circle is drawn?

```javascript
var x = 200;
x = x + 50;
x += 25; // same as x = x + 25;
fill(30, 204, 91); // a nice froggy green!
ellipse(x, 200, 100, 100);
```

a) 25
b) 50
c) 75
d) 200
e) 275
Vocabulary

Variable declaration
\[ \text{var } x = 200; \]
\[ x = x + 50; \]
\[ x += 25; \]

Assignment Operator

Literal

Expression

Comment

fill(30, 204, 91); // a nice froggy green!

ellipse(x, 200, 100, 100);

Function Call

Variable

Literal

Quiz: Evaluating an Expression

What is the value of the JavaScript expression below?
\[ 1 + 2 * 5 \]

a) 1+2*5
b) 125
c) 15
d) 11
e) 1212121212
Quiz: What is Displayed on the Canvas?

```javascript
var zu = 5;
var chen = 4;
if (zu < chen)
{
    zu = chen;
}
if (zu > 10)
{
    zu = zu - 3;
}
fill(0, 0, 0);
textSize(100);
text(zu, 100, 100);
```

a) 5  
b) 4  
c) 10  
d) 2  
e) 3

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Quiz: What is Displayed on the Canvas?

```javascript
var zu = 5;
var chen = 17;
if (zu < chen)
{
    zu = chen;
}
if (zu > 10)
{
    zu = zu - 3;
}
fill(0, 0, 0);
textSize(100);
text(zu, 100, 100);
```

a) 4  
b) 5  
c) 10  
d) 14  
e) 17
Quiz: What is Displayed on the Canvas?

```javascript
var zu = 5;
var chen = 17;
if (zu < chen)
{
    zu = chen;
}
if (zu < 10)
{
    zu = zu - 3;
}
fill(0, 0, 0);
textSize(100);
text(zu, 100, 100);
```

11. a) 4  
   b) 5  
   c) 10  
   d) 14  
   e) 17

---

Quiz: What is Displayed on the Canvas?

```javascript
var zu = 5;
var chen = 4;
if (zu < chen)
{
    zu = chen;
}
else
{
    zu = zu - 3;
}
fill(0, 0, 0);
textSize(100);
text(zu, 100, 100);
```

12. a) 1  
   b) 2  
   c) 3  
   d) 4  
   e) 5
JavaScript Order of Operations

```javascript
>> 2 + 3 * 10
32
```

```javascript
>> (2 + 3) * 10
50
```

Quiz: Evaluating an Expression

What is the value of the 4th JavaScript expression below?

```javascript
a = 2
b = 3
c = 5
a + b + b + c
```

a) a+b+b+c
b) a + b + b + c
c) abbc
d) 13
e) 2335
JavaScript is Case Sensitive

```javascript
var ballX = 10
var speedX = 5;
ballX = ballX + speedX;
```

Incrementing Variables

```
guessesTaken = guessesTaken + 1
```

- When one is added to a variable, programmers say: "the program is incrementing the variable" (because it is increasing by one).

- When one is subtracted from a variable, programmers say: "the program "is decrementing the variable" (because it is decreasing by one).
Quiz: Setting Text Color

Which JavaScript / Processing function sets the color of text in the canvas?

a) `Color(r, g, b);`

b) `color(r, g, b);`

c) `stroke(r, g, b);`

d) `fill(r, g, b);`

e) `TextColor(r, g, b);`