Before we begin

**CMS**  Any new students?

**HW0**  Missing submissions

**HW1**  Will be released at 1pm today

**QZ**  First in-class quiz today
Operators

**Arithmetic Operators**
- + Addition: \( a + b \)
- - Subtraction: \( a - b \)
- * Multiplication: \( a \times b \)
- / Division: \( a/b \)
- + Unary Plus: \(+a\)
- - Unary Minus: \(-a\)

**Relational Operators**
- <
- >
- <=
- >=
- ==
- ~=

**Logical Operators**
- &
- |
- ~

There are arithmetic operators for arrays [later]
Operators

Arithmetic Operators
+ - * /

Relational Operators
< > <= >= == ∼=

Logical Operators
& | ~
Operators

Arithmetic Operators
+ - * /

Relational Operators
< > <= >= == ~ =

Logical Operators
& | ~

& AND: a & b
| OR: a | b
~ NOT: ~ a

More next week
Quiz Solutions - 1

\[
x = 1.7; \quad y = 2.3;
\]
\[
z = x + y;
\]
\[
x = y - x;
\]
\[
y = (z-x)/2;
\]

What are the final values for
\[
x: 0.6 \quad y: 1.7 \quad z: 4.0
\]
What are the final values for
theta: \( \pi/2 \)  ct: 0  val: 1  ans: 1
Complete the following function so that it produces the desired output.

```matlab
function d = distance(x1,y1,x2,y2)
% This function should return the distance between two
% points on the plane with coordinates (x1,y1) and
% (x2,y2). You should add one or more lines to compute
% the output variable d.

d = sqrt((x1-x2)^2+(y1-y2)^2);
```
Now assume that the above function is stored in our current working directory and it is named `distance.m`. On the command window if we enter the following lines,

```matlab
xA = 0; yA = 0;
xB = 3; yB = 0;
xC = 0; yC = 4;
d1 = distance(xA,yA,xB,yB);
d2 = distance(xA,yA,xC,yC);
d3 = distance(xB,yB,xC,yC);
```

What are the final values for

\[ d1: 3 \quad d2: 4 \quad d3: 5 \]
numbergame.m

```matlab
number = fix(10*rand);

guess = input('enter a digit: ');

if number == guess
    disp('that is my number!');
else
    if number > guess
        disp('my number is greater');
    else
        disp('my number is smaller');
    end
end
```
MATLAB Demo

quadratic.m

```
function y = quadratic(a,b,c,x)

y = a*x^2 + b*x + c;
```

Lecture 02
Operators, Expressions
MATLAB Demo

find_quadratic_roots.m

function [r1, r2] = find_quadratic_roots(a,b,c)
% This function computes the roots of a quadratic eqn.
delta = b^2 - 4*a*c;
mid = -b/(2*a);

r1 = mid + sqrt(delta)/(2*a);
r2 = mid - sqrt(delta)/(2*a);