1. Log in
2. Open Netbeans and Moodle
3. Did you do the Syllabus Signature?
4. Wait patiently

Sep 28-7:21 AM

Quick Review on Output

```
System.out.println(" ");        // sout-tab
System.out.print(" ");          // no newline
```

Escape Sequences ...

```
\n                              // new line
\"                              // print quotes
\\                              // print slash
```

Sep 28-9:28 AM

Quick Review on Comments

```
// This would be a single line comment

    int goals;                  // # of goals scored

/* This is also a comment but can span
 *  more than one line.  This would be used
 *  when you want to leave a longer note */
```

Sep 28-9:28 AM

Variable Types for AP

Declared	**Initialized**	
int a;	int f = 5;	
double b;	double r = 3;	//warning!
String c;	String m = "Hi!";	
boolean d;	boolean t = true;	//only t/f

Sep 28-9:28 AM

Reminder About Types

Variable initialization:

```
int a = 5;          // this is perfect
int b = 5.0;        // ERROR!
double f = 7.8;     // this is perfect
double g = 7;       // this is "OK"
```

Sep 28-9:28 AM

Reminder About Variable Names ...

* Can ONLY use the following:
  - Letters
  - Numbers
  - Underscore Symbol

* MAY NOT start with a number!
* Start with lower case, upper case represents that you start a new word
* They ARE case sensitive!

Sep 28-9:28 AM

Reminder About Types

* JAVA will not allow you to "lose precision" but will allow you to "gain precision" here.

```
int a=7, b=2, c=3;
double f=4, g=5, h=10;        // actually = ?

System.out.println(7/2);
System.out.println(7.0/2);
System.out.println(7/2.0);
System.out.println(a/c);
System.out.println(c/g);
System.out.println(g/f);
System.out.println(h/g);
```

Sep 28-9:28 AM

Another way to put it ...

Be aware - JAVA defaults to "most precise"

int + int	= int
int * double	= double
double - double	= double
int * int + double	= double
int / int + int	= ??? depends

Sep 28-9:28 AM

Final Variables ...

In mathematics, this is called a constant! (it can't be changed!)

* Put the word 'final' in front of any variable declaration/inialization and you ...

"CAN'T TOUCH THIS"!

```
final double pi = 3.14;
final int myFavNumber = 7;
```

Sep 29-11:43 AM

Incrementing/Decrementing ...

Can you add 1?
Can you subtract 1?

```
int number = 5;
System.out.print(++number);
```

Before I use 'number', I will at one to it

Output = 6

The integer number is now 6 for the rest of the program ... unless changed again!

Sep 29-11:43 AM

```
int number = 5;
System.out.print(number++);
```

After I use 'number', I will add one to it

Output = 5

The integer number is now 6 for the rest of the program ... unless changed again!

Sep 29-11:43 AM

Same for decrementing ...

```
int number = 5;
System.out.print(number --);
```

Output = 5 But, number is now 4 ...

```
int number = 5;
System.out.print(--number);
```

Output = 4 and number is now 4 ...

Sep 29-11:43 AM

```
int number = 5;
System.out.print(number++);
System.out.println(number);
```

Output = 

```
int i = 3;
i++;
System.out.print(i);
++i;
System.out.print(i);
System.out.print(++i);
System.out.print(i++);
System.out.print(i);
```

Output = 

Sep 29-1:11 PM

```
int q = 78;
int p = 2 + q++;
System.out.println("p=" + p + "\nq=" + q);
```

Output: 

```
int a;
int b;
int c;

a = 100;
b = ++a;
c = b++ + ++a;

System.out.println("a = " + a);
System.out.println("b = " + b);
System.out.println("c = " + c);
```

Output: 

Sep 29-3:09 PM

Note: We can force something to be an integer or a double!!!

Cast: To force a variable type.

(int) before = force integer
(double) before = force double

* Place your desired variable type in parenthesis before the item.

Sep 30-6:01 PM

Remember Ways to do the "math" ...

```
double a = 5/2;          //not correct math = 2.0
double a = 5.0/2;        //good math = 2.5
double a = 5/2.0;
double a = 5.0/2.0;
double a = (double)5/2;
double a = 5/(double)2;
```

Sep 30-6:03 PM

What would the following return?

*(int)(3.0+4) / (1 + 4.0) * 2 - 3*

-0.2
Be sure to walk through this problem

(double)10 / 8

1.25

*(int)(7.5/3)*4*

8

(13/2) + (double)1

6.0

Sep 30-6:04 PM

Checklist for today ...

- ☐ Moodle all setup and working
- ☐ Understand today's lesson
- ☐ Complete Unit 1 Worksheet 01
- ☐ Enter Worksheet Answers in Moodle (counts as a grade, retake once)

Sep 28-9:44 AM