Variables
- In math, usually mean unknown, ambiguous or changing
- In programming, think of it like a container
  - More like a location
- Declare – states the type and its name.
- Initialize – specifying an initial value
- Literals
  - The type of value and the value itself

Variable Rules
- Things to keep in mind when naming:
  - Descriptive
    - Avoid single character variables
  - Must start with a letter
    - Remaining can be letters, numbers, and underscore
  - Can't be a reserved word (no ints named class, int, double, etc.)
  - Camel Case
    - Multiple words together for a single variable
  - No spaces

Double and Ints
- Examples
  - int numOfCars = 12;
  - double classAvg = 0.89;
- int
  - Integer
- Double
  - Floating-point numbers (decimals)
  - Think sig figs

Assignments
- Assignments
  - Once a variable is initialized, its value can change
    - int num = 5;
    - num = num + 6;
      - What is the value of num? (11)
  - Note: even though x=5 is the same thing as 5=x, it is not the same in Java
  - Doesn't work if it is a constant
    - Final int CARTON_OF_EGGS = 12;

Common Shorthand
- Increment
  - counter = counter + 1;
  - counter += 1;
  - counter++;
- Decrement

- o counter = counter – 1;
- o counter -= 1;
- o counter--;
- Time
  - o Time is in minutes
    - int hours = time / 60
    - int minutes = time % 60
  - o Even/Odd
    - %2
  - o Breaking apart numbers
    - int last2Digits = num % 100;
    - int last3Digits = num % 1000;

Typing Expressions in Java
- Make sure you add spaces between each operator
- Other variables are:
  - o boolean (true/false)   boolean enrolled = false;
  - o characters   char middleInit = 'D';
  - o strings   String firstName = "Todd"
- Prompts:
  - o A big part of the class will be prompting the user for information
    - Prompt – Informing the user to provide input
  - o Unfortunately, reading keyboard input is not really a part of Java code
  - o There is a System.in, but we have to use other classes to make it useful
- Scanner
  - o Scanner can use System.in
  - o You can use something instead of in
    - Such as input
  - o See camera roll
- Scanner Methods
  - o nextInt( )
  - o nextDouble( )
  - o nextBoolean( )
  - o next( )
  - o nextLine( )
- Programs
  - o TwistedPhoneNumber
  - o ConeSurfaceArea
  - o Receipt