**Class 15 Assignment Statements**

**Key Ideas**

* Assigning one variable to another results in both variables referring to the same location
* Assigning an expression (not another variable) to a variable in an assignment statement creates a new location for the variable to reference
* Every location has a unique identity; the value of the identity is returned by the **id** function
* Every time a variable is assigned a new value, the identity changes
* If two variables of a mutable type refer to the same location, then changing one variable changes the other, also
* Using a slice to get an entire list (or other mutable data structure) creates a new location
* Shortcut assignments save typing
* For mutable types, shortcut assignments modify the variable rather than creating a new location
* Simultaneous assignments can be used to simultaneously assign multiple values to multiple variables
* Passing arguments to functions works the same way as assigning one variable to another
* Passing an argument to a function parameter results in the function parameter referring to the same location as the argument
* To prevent a function from changing an argument that is a mutable type, pass a slice containing the entire data structure

**Built-ins**

**Functions**

**id:** returns the identity of a variable

**Operators**

**is:** compares two variables to determine whether they have the same identity or not

**is not:** compares two variables to determine whether they do not have the same identity

shortcuts: e.g, a += b is equivalent to a = a + b

+=

-=

\*=

/=

Etc.

**Assessment Questions**

(**T**/F) The expression “a is b” returns True if the variable a refers to the same location as the variable b

(**T**/F) The expression “a \*= 2” is the same as the expression “a = a \* 2”, meaning the same result.