**Class 27**

**Key Ideas**

* User-defined functions: functions that you write
* what you write is the function definition, which consists of the header and the body
* Function header for a function that returns one value: specifies the name of the function, what the inputs are, and what the output argument is called
* Functions are stored in code files that have the same name as the function
* A value is returned from a function by storing it in the output argument
* Variables in a function, the input arguments, and the output arguments are only known within the function
* Functions that return values should NOT also print them
* MATLAB programs: the combination of a script, and at least one user-defined function that it calls to implement some part of the algorithm
* In MATLAB, functions can return more than one value
* It is important to capture all values that a function returns
* There are functions that do not return anything; instead, they accomplish a task (such as printing or plotting)
* calls to these functions are statements
* Modular programs: every task is implemented in a function
* A script calls functions to do all of the work
* Local functions: used when one function calls another (and the function will not be called from anywhere else)

**Assessment Questions**

1) Here is a function header:

function [a, b] = funone(x)

Check all valid calls to this function:

a) [a, b] = funone(33);

b) [x, y] = funone(33);

c) [res1, res2] = funone;

d) funone(11, 33);

Answers: a and b are valid

2) Here is a function header:

function doit(inarg, inb)

Which of these is a valid call to the function?

a) doit(3, 5)

b) x = doit(4, 6)

c) disp(doit(33, 11))

d) function(3, 5)

Answer: a is valid