1. **MATLAB Interface Exercises**
   1. Exercise 1: Familiarize yourself
      1. Type “1”. Enter. Check your command window and workspace. What happens?

Output is 1 in CW. In workspace, its assigned ans =1. No operation is told to MATLAB so none is executed.

* + 1. Type “1+1”. Enter. Check your command window and workspace. What happens?

Output is 2 in CW. In workspace, it's assigned ans =2. Operation immediately executed in CW.

* + 1. It's not all numbers and hoopla, we can chat too. Type “Hello World”. Try now, “fprintf(‘Hello World’). Are they all different?

Yes they're different. Simply typing characters into CW will not work. However using fprintf will allow you to output words

1. **MATLAB Variables + Basic op Exercises**
   1. Exercise 2: Variables
      1. Try “x=1+1”. Enter. What happens? Compare to item (ii) in Exercise 1

Output is 2 in CW. In workspace, it's assigned x =2. This time we’ve assigned a variable name to the operation so the number 2 is dumped into variable “x”.

* + 1. Now, try “a=3”. Enter. “b=a”. What happens?

We assign the number 3 to variable “a”.In MATLAB, the condition b=a does not mean “a equals b”. Instead it means replace the contents of “b” with those of “a”. Thus, we see in CW and workspace that b=3.

* + 1. Ok now, “a=3”. Enter. “a=a+1”. Enter. “a”. What happens?

The value of “a” is replaced with the operation from the second command. “a” becomes equal to 4.

* + 1. Type “a=3;”. Enter. “b=5;”. Enter. “c=a+b”. What is c? What is the purpose of the semicolon?

“c” is 8. The purpose of the semicolon is to suppress the output of the command. Notice how “c” did not have a semicolon and it outputted in the CW.

* + 1. Let's clear a variable: “c1=3;” enter “c2= c1+5;” enter “clear c1” enter “c1” Watch the Workspace. What happened?

We erased the contents of c1, thus an error occurred when trying to output an empty variable.

* + 1. Lastly, type “clc”. Enter. Type “clear” What happens in each case?

The CW clears. The variables in Workspace are cleared.

* 1. Exercise 3: Playing with built-in arithmetic functions
     1. 1234+4567=?

5801

* + 1. 104-753=?

-649

* + 1. 47\*90=?

4230

625

* + 1. versus . Does MATLAB use PEMDAS?

9 versus 7. Yes

* + 1. Use command to verify inequalities. Type “4>5”. Enter. Then “5>4”. Enter. What are the results of each and what do they mean?

Output is 0 and 1. In MATLAB boolean returns 0 and 1 instead of True or False. Thus, 4>5 returns 0 which is false and 5>4 returns 1 which is true

* + 1. We want a function to square root a value. Type in “lookfor square”. MATLAB will give you commands that have the word square. Now, Try

95 and 0.0000 + 1.7321i

* + - 1. For more info on a built-in function, type “help [name of that function]”, in this ex: “help sqrt”
    1. Try, “x=pi”, “y=sin(pi/2)”, and “z= exp(-sin(pi/2))”. Report all

x=3.1416, y=1, and z=0.3679

1. **MATLAB Script**: For these exercises, each should be located in a script file saved as the name (i.e TemperatureConverter) in your Week 1 folder. Please include the script and output for each below:
   1. Exercise 4: Cake
      1. Write a script that figures out the amount of frosting needed on a two-layered cake (yum!)
         1. Check slides
   2. Exercise 5: Triangle
      1. Write a script that finds the remaining length of a triangle with angle 30° and sides with length 10 and 20.
         1. Use cosine rule:
            1. Hint: MATLAB trig functions use radians
   3. Exercise 6: Temperature Converter
      1. Write a script that inputs temperature in Fahrenheit and outputs temperature in Kelvin.
         1. Hint: what's the equation for this conversion?

Solutions for the script exercises located in the script folder. Not sure best way to share those