

Name:

NetID:

You have 10 minutes to complete this quiz. You may not use a computer to answer the questions.

1. What are the two main differences between Matlab functions and scripts?

[Ans]

- (a) A Matlab function can accept input parameters and return values that can be stored in variables, whereas a script cannot.
- (b) A Matlab function operates within its own “private” workspace. Any local variables that are created within a function are separate from those that may reside in the main workspace, and are destroyed when the function exits. A script on the other hand uses the same workspace as its calling context.

2. State whether the following statements are true or false:

- (a) A `uint8` value is any number in the range $[0, 255]$.

[Ans] False — a `uint8` value can only be an integer in the range $[0, 255]$, and not just any number.

- (b) In Matlab, a grayscale image is represented using a 2-D array, whereas a color image is represented using a 3-D array.

[Ans] True.

3. Consider the following M-files:

```
x = 3;  
y = 2;  
y = y + bar(x, y);  
fprintf('%d %d\n', x, y);
```

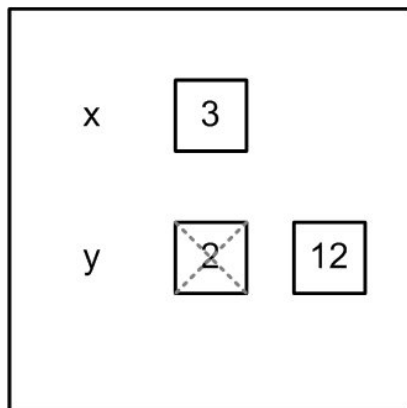
Script `foo`

```
function y = bar(z, x)  
x = 7;  
y = x + z;  
end
```

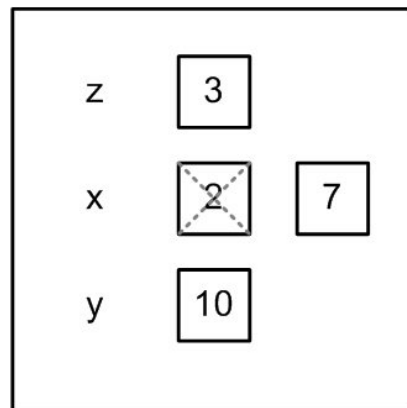
Function `bar`

The user executes the script `foo`. What is printed to the screen by the script? *Carefully trace through the code step-by-step as we did in class. To be eligible for partial credit, you must show your work neatly.*

[Ans] The figure below depicts the evolution of the workspaces of `foo` and `bar` as execution proceeds and terminates.



Workspace of `foo`



Workspace of `bar`

The workspace for `bar` is deleted when the function terminates. The values printed to the screen at the end are the values of `x` and `y` in the `foo` workspace, i.e., 3 and 12.