

4.1 THE MATLAB WORKSPACE AND THE WORKSPACE WINDOW

The MATLAB workspace consists of the set of variables (named arrays) that are defined and stored during a MATLAB session. It includes variables that have been defined in the Command Window and variables defined when script files are executed. This means that the Command Window and script files share the same memory zone within the computer. This implies that once a variable is in the workspace, it is recognized and can be used, and it can be reassigned new values, in both the Command Window and script files. As will be explained in Chapter 7 (Section 7.3), there is another type of file in MATLAB, called a function file, where variables can also be defined. These variables, however, are normally not shared with other parts of the program since they use a separate workspace.

Recall from Chapter 1 that the `who` command displays a list of the variables currently in the workspace. The `whos` command displays a list of the variables currently in the workspace and information about their size, bytes, and class. An example is shown below.

```
>> 'Variables in memory'
```

Typing a string.

```
ans =
Variables in memory
```

The string is assigned to ans.

```
>> a = 7;
>> E = 3;
>> d = [5, a+E, 4, E^2]
```

Creating the variables a, E, d, and g.

```
d =
     5     10     4     9
>> g = [a, a^2, 13; a*E, 1, a^E]
```

```
g =
     7     49     13
    21     1    343
>> who
```

Your variables are:

```
E    a    ans    d    g
```

The `who` command displays the variables currently in the workspace.

```
>> whos
```

Name	Size	Bytes	Class	Attributes
E	1x1	8	double	
a	1x1	8	double	
ans	1x19	38	char	
d	1x4	32	double	
g	2x3	48	double	

The `whos` command displays the variables currently in the workspace and information about their size and other information.

The variables currently in memory can also be viewed in the Workspace Window. This window can be opened by selecting **Workspace** in the **Desktop** menu. Figure 4-1 shows the Workspace Window that corresponds to the variables defined above. The variables that are displayed in the Workspace Window

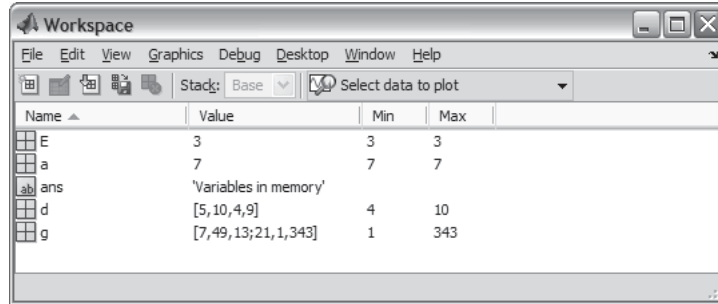


Figure 4-1: The Workspace Window.

can also be edited (changed). Double-clicking on a variable opens the Variable Editor Window, where the content of the variable is displayed in a table. For example, Figure 4-2 shows the Variable Editor Window that opens when the variable *g* in Figure 4-1 is double-clicked.

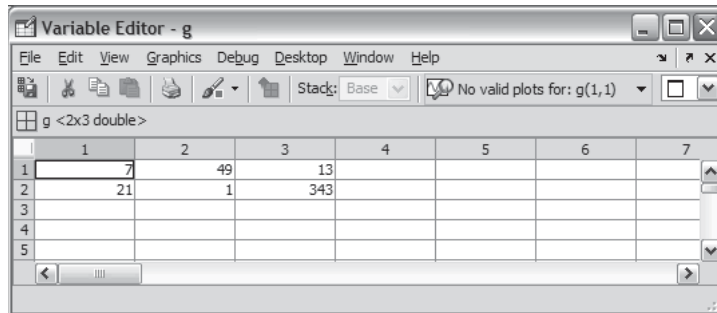


Figure 4-2: The Variable Editor Window.

The elements in the Variable Editor Window can be edited. The variables in the Workspace Window can be deleted by selecting them, and then either pressing the **delete** key on the keyboard or selecting **delete** from the **edit** menu. This has the same effect as entering the command `clear variable_name` in the Command Window.

4.2 INPUT TO A SCRIPT FILE

When a script file is executed, the variables that are used in the calculations within the file must have assigned values. In other words, the variables must be in the workspace. The assignment of a value to a variable can be done in three ways, depending on where and how the variable is defined.