

MATLAB uses variables to store numerical values. To define a variable, simply think up a variable name and set it equal to a value. Variable names can be virtually anything except reserved functions such as sin, exp, pi, etc. Case matters in MATLAB, so the objects “angle” and “Angle” would refer to two different variables. MATLAB will verify the variable name and value by printing them to the screen as shown at right. To simply define a variable without the verification add a **semicolon** at the end of the statement (see examples below).

```
>> angle = 10
angle =
    10
```

The two examples below show how variables may be used in calculations. Typing the variable name by itself prints its value to the screen.

```
>> x = 1;
>> y = 2;
>> z = x + y

z =

    3
```

```
>> theta = pi / 4

theta =

    0.7854

>> sin(theta)

ans =

    0.7071
```

```
>> clear
>> x = 10;
>> y = 20;
>> A = 2;
>> who
```

Your variables are:

```
x    y    A
```

```
>> x
```

```
x =
```

```
    10
```

```
>> clear x
```

```
>> who
```

Your variables are:

```
y    A
```

```
>> x
```

```
??undefined function or variable 'x'.
```

The following commands may help you organize and keep track of your variables:

- who** - returns a list of all the variables/matrices that are defined
- whos** - similar to who, but also gives the dimensions, number of elements, data type, etc. of the variable/matrix
- clear** - removes all variables from memory (deletes them)
- clear x** - clears only the variable named “x”

The example at right puts some of these ideas into practice. The error message at the bottom occurs when you try to view a variable’s contents that no longer exists (because it was erased with the clear command).

As you define variables, notice that they appear in the **Workspace Window** to the right of the Command Window and the definitions appear in the **Command History Window** below it. You can drag the statements out of the History Window to the Command Window to edit or re-execute it. You can also use the **up and down arrow keys** in the Command Windows to scroll through previous commands (to save typing).