

1.6.3 Predefined Variables and Keywords

There are 20 words, called keywords, that are reserved by MATLAB for various purposes and cannot be used as variable names. These words are:

```
break case catch classdef continue else elseif end for
function global if otherwise parfor persistent return
spmd switch try while
```

When typed, these words appear in blue. An error message is displayed if the user tries to use a keyword as a variable name. (The keywords can be displayed by typing the command `iskeyword`.)

A number of frequently used variables are already defined when MATLAB is started. Some of the predefined variables are:

`ans` A variable that has the value of the last expression that was not assigned to a specific variable (see Tutorial 1-1). If the user does not assign the value of an expression to a variable, MATLAB automatically stores the result in `ans`.

`pi` The number π .

`eps` The smallest difference between two numbers. Equal to $2^{(-52)}$, which is approximately $2.2204\text{e-}016$.

`inf` Used for infinity.

`i` Defined as $\sqrt{-1}$, which is: $0 + 1.0000i$.

`j` Same as `i`.

`NaN` Stands for Not-a-Number. Used when MATLAB cannot determine a valid numeric value. Example: $0/0$.

The predefined variables can be redefined to have any other value. The variables `pi`, `eps`, and `inf`, are usually not redefined since they are frequently used in many applications. Other predefined variables, such as `i` and `j`, are sometime redefined (commonly in association with loops) when complex numbers are not involved in the application.

1.7 USEFUL COMMANDS FOR MANAGING VARIABLES

The following are commands that can be used to eliminate variables or to obtain information about variables that have been created. When these commands are typed in the Command Window and the **Enter** key is pressed, either they provide information, or they perform a task as specified below.

Command

`clear`

Outcome

Removes all variables from the memory.