**fprintf Statement**

- **Syntax**: `fprintf('text and/or format commands', variables)`
- The **format commands** control how the values of the variables are printed (e.g., significant digits) as well as the “look” of the output (e.g., tabs and line feeds).
- The **variables** can be **scalars**, **vectors**, or **matrices**.
- More than one variable may be printed using the same `fprintf` statement.

- The `%f` is an output format command. It tells Matlab where and how (**fixed** decimal format) to print numbers.
- The format command can appear anywhere in between the single quotes.
- All output variable format commands must start with the `%` sign (yes, so does the **comment operator**, and yes this is confusing). The letter may be different. Common conversion specifiers are:
  - `%e` Exponential notation (using lowercase `e` as in 3.1415e+00)
  - `%E` Exponential notation (using uppercase `E` as in 3.1415E+00)
  - `%f` Fixed decimal point notation (as in 3.14159)
  - `%g` The more compact of `%e` or `%f`, that is Matlab chooses. Insignificant zeros do not print.
  - `%G` Same as `%g`, but using an uppercase `E`.

- The **format commands** control the “look” and “layout” of most of the output so that it is readable and understandable.
- The commands appear **INSIDE** the single quotes.
- The new line command (`\n`) is useful in adding blank lines at the top and bottom of the output as well as in between various sections of the output.
- The new line command (`\n`) is also useful in creating tables (i.e., vertical lists of data).
- The tab command (`\t`) is useful in ensuring that vertical columns of data “line up” properly, although I prefer to use blank spaces.
- Other line control commands are available (see `help`).

- We can also control the “**width**” (the total number of spaces used) and the “**precision**” (number of decimal places) to print.
- The general format is: `%%<flag><width>.<precision><conversion specifier>`
- The `<flag>` controls items such as leading zeros, always printing the sign (+ or -), etc. See the `book` or `help` file.
- The `<width>` is the total number of spaces to use in printing the number (including the decimal point).
- The `<precision>` is the number of decimal places to print.
- The `<conversion specifier>` was discussed on the previous page (i.e., `e`, `E`, `f`, `g`, or `G`).