\[ 2.618 = \sqrt{2.618^2} + 1 \]

**For-loops** is to execute a command (or commands) within a **Nested** loop.

**Matlab**

```matlab
for n = 1:5
    n+2
end
```

Explanation:

For integer values from 1 to 5, execute the command

\[ n+2 \]

\( n \) - is the counter (variable) in the for-loop
Math \[ x_{n+1} = \cos(x_n) \quad n=1,2,3,...,N-1 \]

This defines how elements of a vector \( x = (x_1, x_2, ..., x_N) \) are defined.

The value of \( x_1 \) must be given to generate the other elements.

Example start value \( x_1 = \frac{1}{2} \)

Then \( x_2 = \cos\left(\frac{1}{2}\right), \quad x_3 = \cos\left(x_2\right) = \cos\left(\cos\left(\frac{1}{2}\right)\right) \)

Given \( x_1 = \frac{1}{2} \), want vector \( (x_1, x_2, ..., x_{10}) \),

\( \left(\frac{1}{2}, 0.8776, 0.639, ..., \right) \)
Function function-name (input variables)

Structure:
- The functions have a specific
- o

Set of commands often.
- If you want to re-execute a
- W-files are useful, particularly

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Function output variables = function-name(initials)

The values for internal variables

Also, functions can return

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