Plotting Functions

\[
\begin{align*}
\text{Plot}[x, \{x, 0, 1]\] \\
\text{Plot}[x^2, \{x, 0, 1]\] \\
\text{Plot}[x^3, \{x, 0, 1]\]
\end{align*}
\]

\[
\begin{align*}
n & = 1 \\
\text{Plot}[x^n, \{x, 0, 1]\]
\end{align*}
\]

Annimation: Go to Graphics, Rendering, Animate Selected Graphics.

Useful command: \text{PlotRange} which will insure all pictures are on the same scale.

\[
\begin{align*}
\text{Plot}[x, \{x, 0, 1\}, \text{PlotRange} \to \{0, 1\}] 
\end{align*}
\]

Can use the Do loop feature to make many plots quickly.

\[
\begin{align*}
\text{Do[Print[n], \{n, 1, 5\]} 
\end{align*}
\]

For Plotting Functions, the command gets a bit complicated.

\[
\begin{align*}
\text{Do[Print[Plot[x^n, \{x, 0, 1\}], \text{PlotRange} \to \{0, 1\}], \{n, 1, 5\}]}
\end{align*}
\]

- Define a function with Mathematica. Note the use of the underscore next to the variable and the \(\_\) in the definition line.

\[
\begin{align*}
f[x\_] := x^2 
\end{align*}
\]

When you use the function in a plot statement, you no longer use the underscore.

\[
\begin{align*}
\text{Plot}[f[x], \{x, 0, 2\}] 
\end{align*}
\]

You can also define a function with two variables \(x\) and \(n\). We will use this to define a sequence of functions.

\[
\begin{align*}
f[x\_, n\_] := x^n \\
n & = 1 \\
\text{Plot}[f[x, n], \{x, 0, 1\}]
\end{align*}
\]