VB functions
> easier to visually debug than comparable formulas in a cell.
> offer increased power to MS Excel via more complex series of operations.

Review → MS Excel
> Tools → Macro → Visual Basic Editor
if necessary, insert → module
write code!

Look at simple function.

\[ f(x) = \begin{cases} 
0 & x < 0 \\
1.0 & 0.0 \leq x \leq 1.0 \\
0 & x > 1.0 
\end{cases} \]
To make a decision, we need to ask a question.

In computers, 'question' is:

If (question is true) then perform action

the f(x) might be evaluated like

\[ f_{-of-x} = 0. \]

set to zero to stop

\[
\begin{align*}
\text{if } & \text{ } x < 0 \text{ Then } \\
& f_{-of-x} = 0. \\
\text{else if } & \text{ } x \geq 0 \text{ AND } x \neq 1 \text{ Then } \\
& f_{-of-x} = 1. \\
\text{else } & \\
& f_{-of-x} = 0. \\
\text{end if}
\end{align*}
\]

Flow over flat plate
\[ \text{Nu}_L = \begin{cases} 0.664 \, \text{Re}_L^{\frac{1}{2}} \, \text{Pr}^{\frac{1}{3}} & \text{Re} < 5E5 \\ (0.037 \, \text{Re}_L^{\frac{4}{5}} - 871) \, \text{Pr}^{\frac{11}{3}} & \text{Re} \geq 5E5 \end{cases} \]

\[ 5E5 = 5 \times 10^5 = 500,000 \]