The purpose of this assignment is to gain familiarity with basic control flow commands: if, elseif, else, for, while, etc. You can learn about these with the Introducing Julia page.

If/Else

To practice if statements you'll create a camber function associated with the NACA 4-Series Airfoils

NACA 4-series Camber Formula *The NACA 4-series formula for airfoil camber along the chord is given by the following piecewise polynomial function, where c is the value of maximum camber (as a percentage of the chord), p is the position of maximum camber (in units of chord/10), and x is the x-position along the unit length chord.*

$$\bar{z} = \begin{cases} \dfrac{c(2px - x^2)}{p^2} & \text{if } x \leq p \\ \dfrac{c(1 - 2p + 2px - x^2)}{(1-p)^2} & \text{if } x > p \end{cases}$$

Using the NACA 4-series Camber Formula above, create a function that takes in three inputs: x, p, and c; and outputs the camber $\bar{z}$.

To check your work, you should be able to recreate the following table for $c = 0.02$ and $p = 0.40$

x	$\bar{z}$
0.0	0.0
0.1	0.00875
0.2	0.015
0.3	0.01875
0.4	0.02
0.5	0.019444
0.6	0.01777
0.7	0.015
0.8	0.0111
0.9	0.006111
1.0	0.0

Loops

1. Using for loops, print the tables from activities 1 and 2 using 3 lines of code each. (hint, call your function in the loop and use the iterator in your inputs)

2. Do the same using while loops (you'll need 2 more lines of code to initialize and update the iterator).