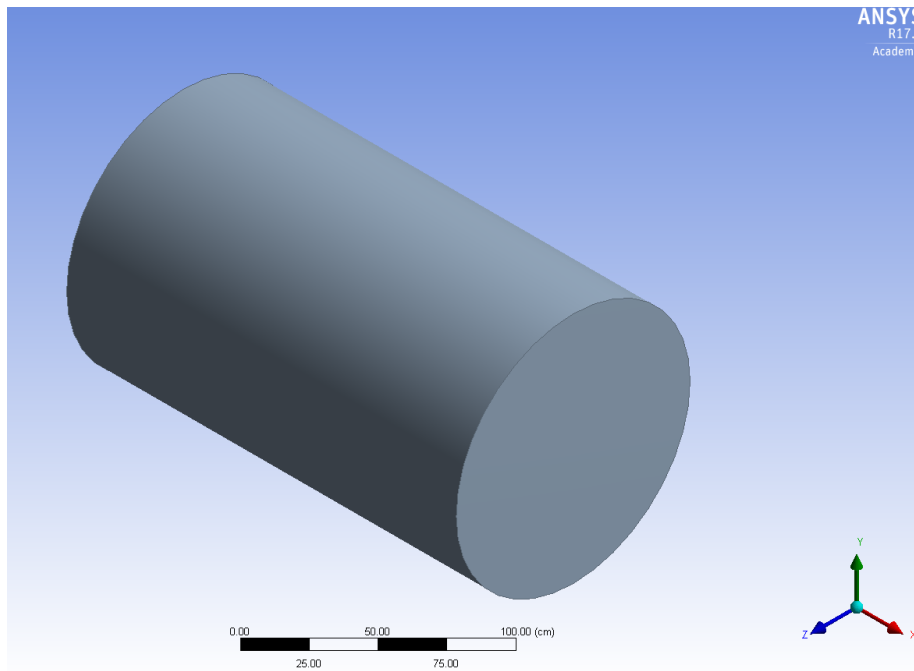


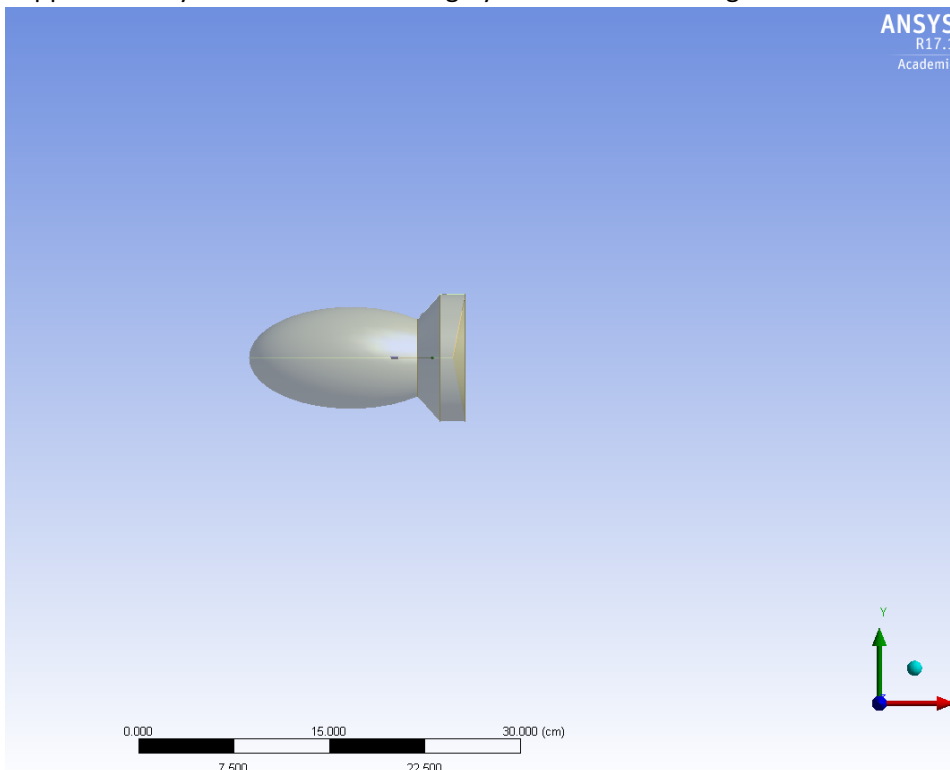
**Challenge #6**

1)

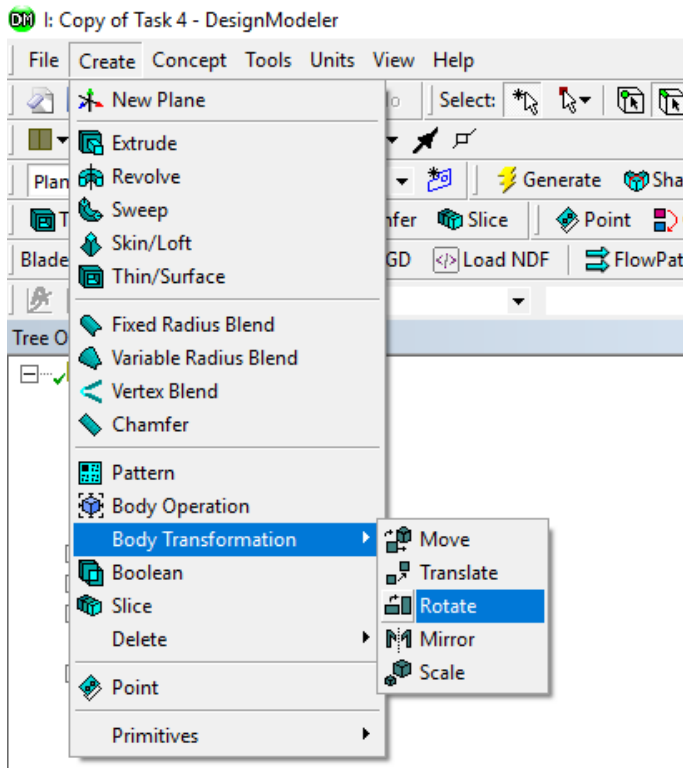
This procedure assumes that a 3-D fish setup has already been built and a surrounding cylinder encompasses the fish.



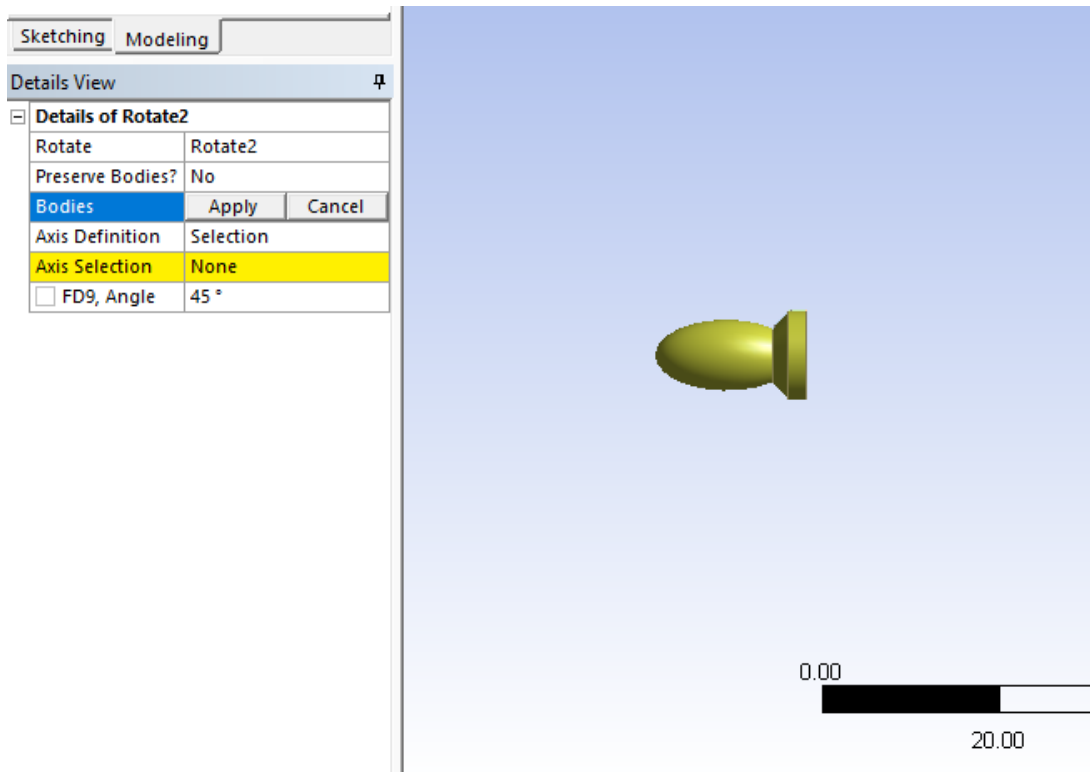
1. Suppress the cylinder extrude and align yourself to be looking at the fish from the side.



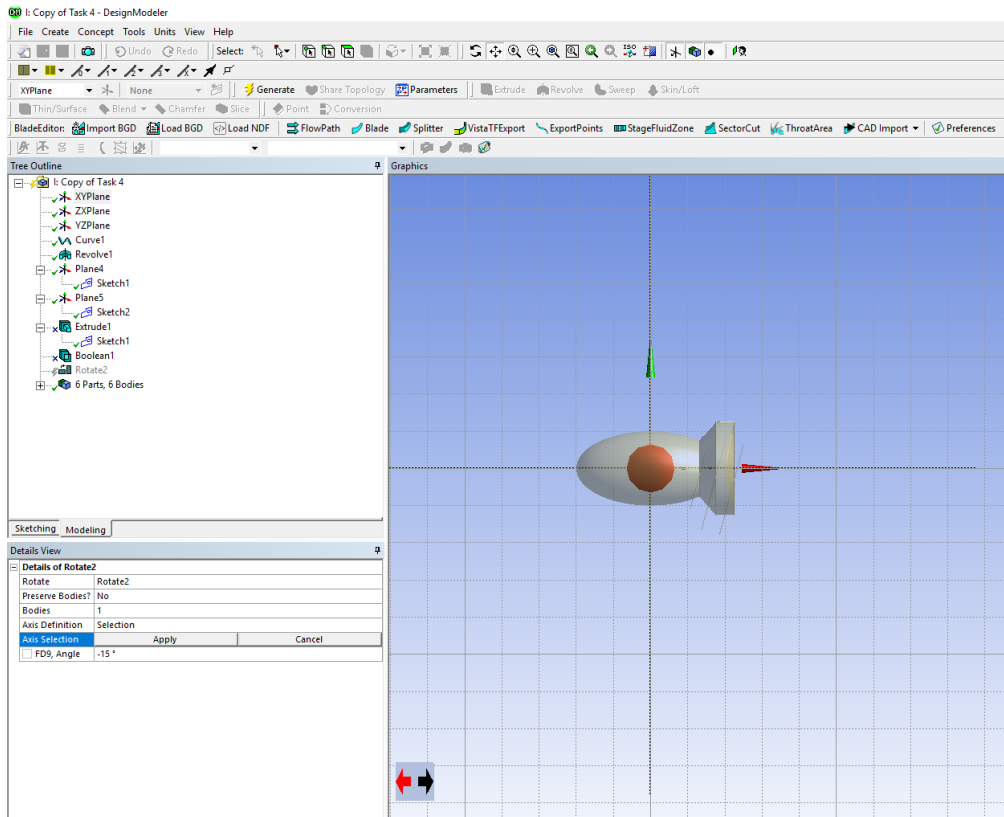
2. At the top left of the window, select “Create -> Body Transformation -> Rotate”



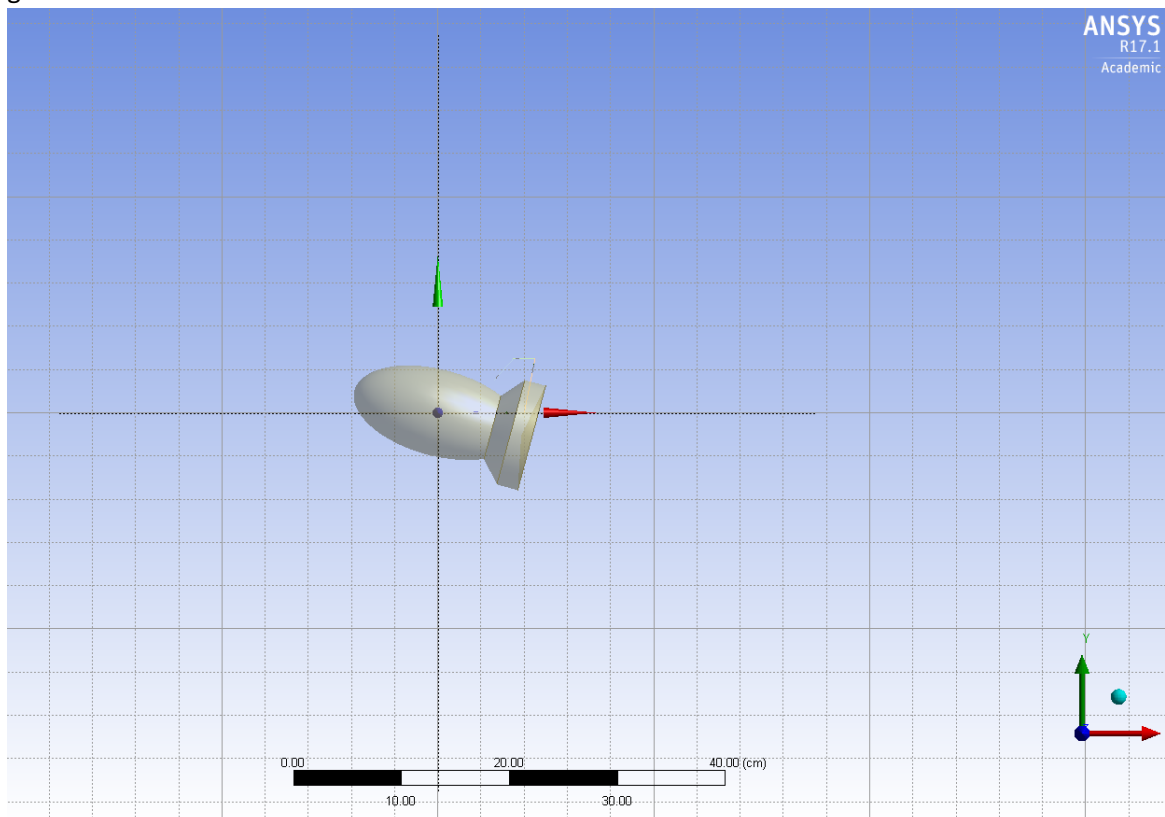
3. With “Rotate” selected, you may now select the fish and then hit “Apply” next to Bodies in the Details View.



- Now for “Axis Selection” select the corresponding plane that shows an arrow pointing through the side of the fish (for me, it is the XY plane) and select apply.



- Once the correct axis is selected, the final choice is to input the angle of rotation and then generate the new fish orientation.



2)

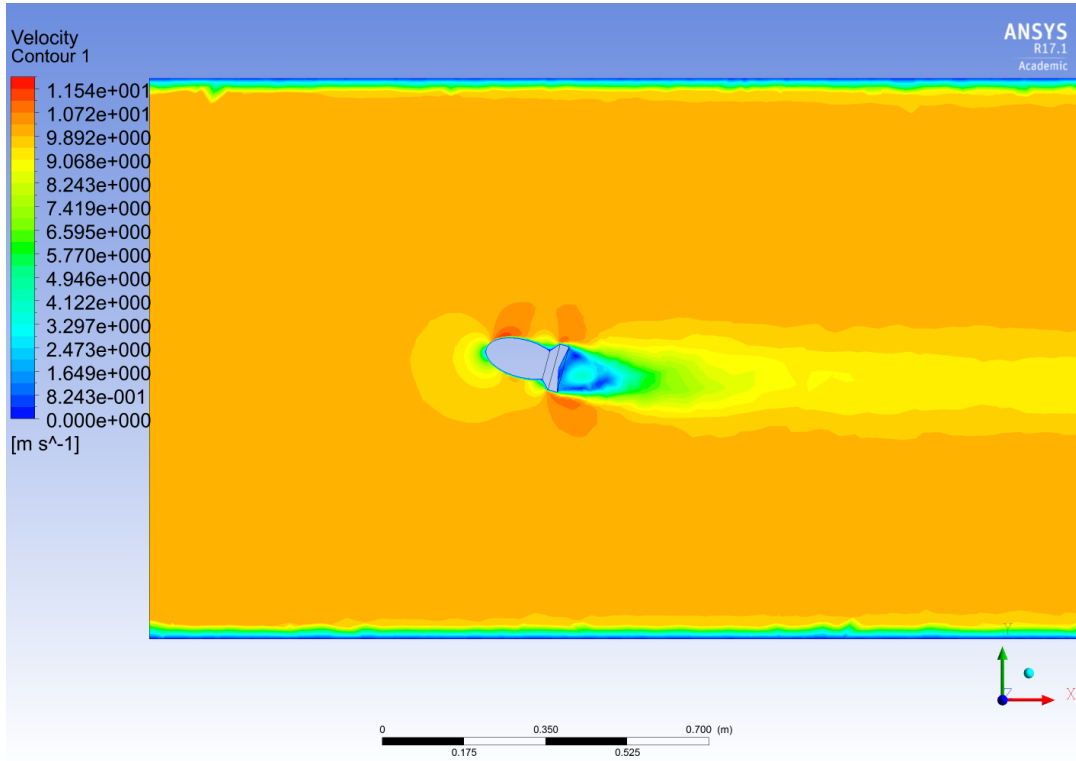


Figure 1: Velocity Magnitude Contour Plot at 15 Degree Angle of Attack

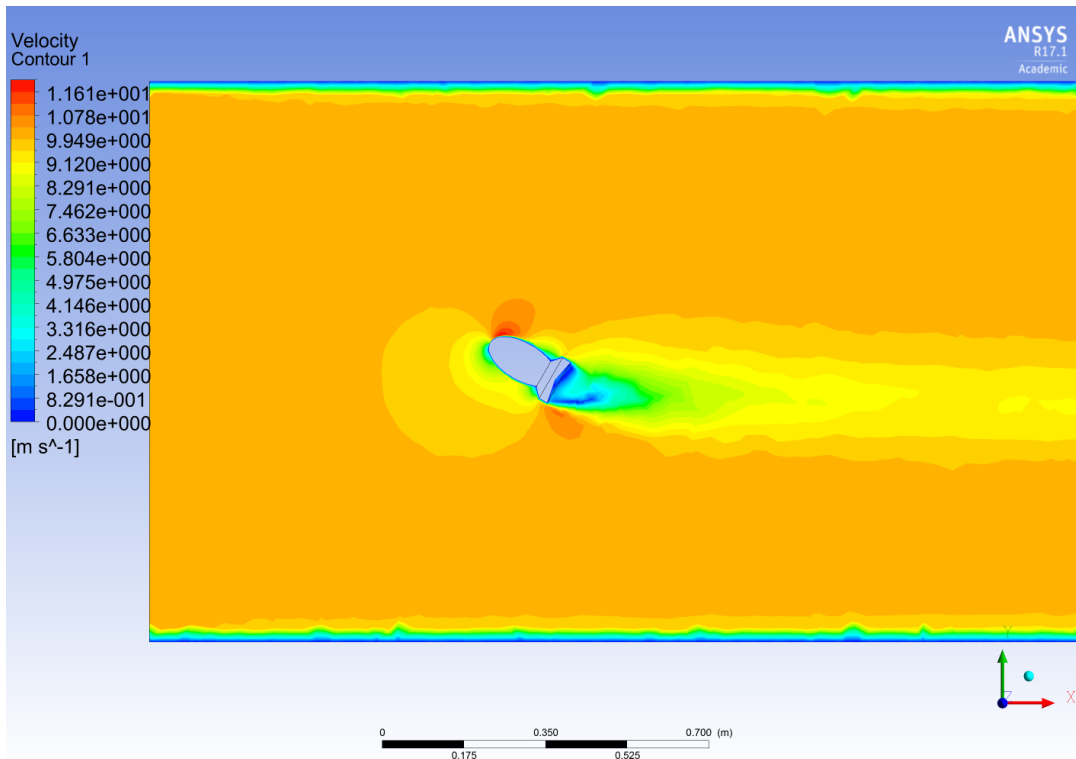


Figure 2: Velocity Magnitude Contour Plot at 30 Degree Angle of Attack

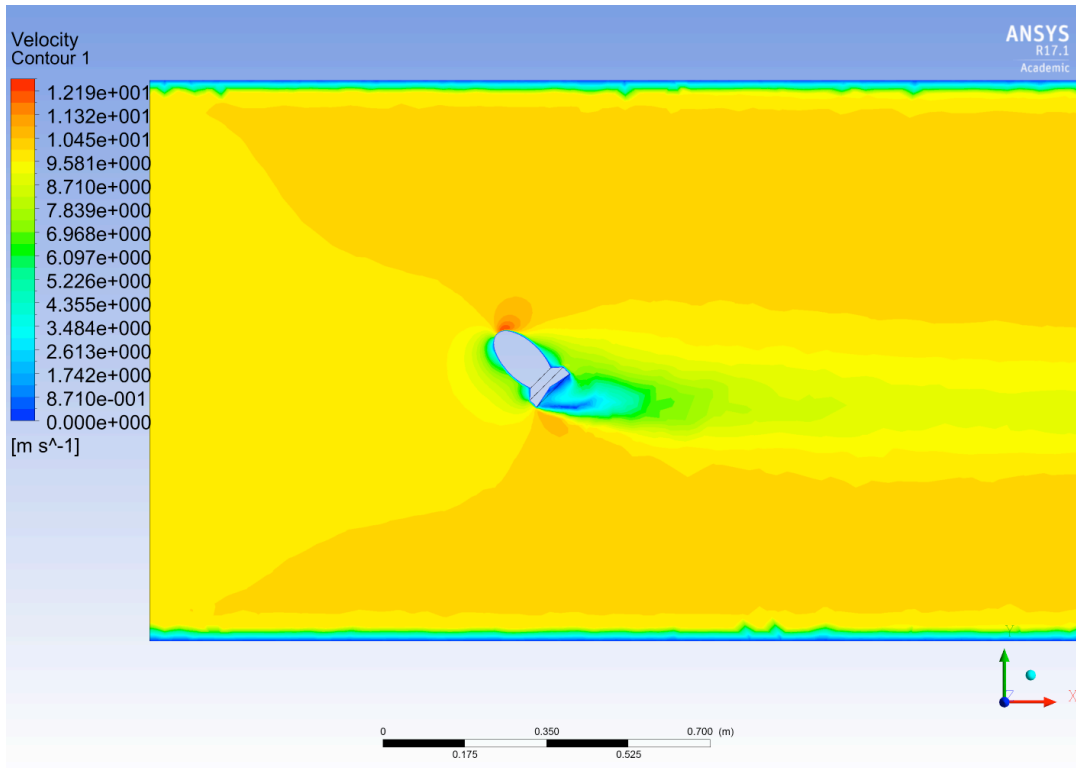


Figure 3: Velocity Magnitude Contour Plot at 45 Degree Angle of Attack

3)

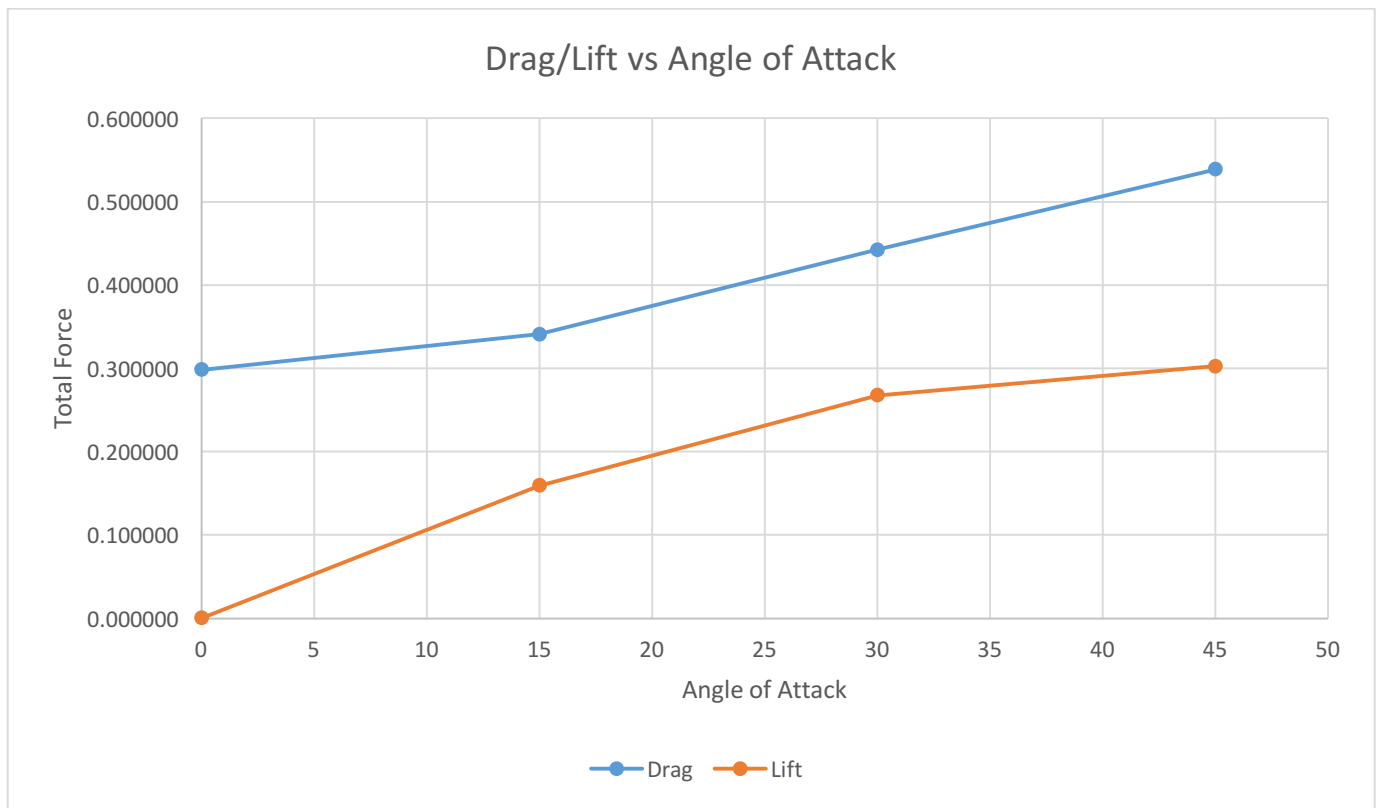


Figure 4: Lift and Drag as a Function of Angle of Attack