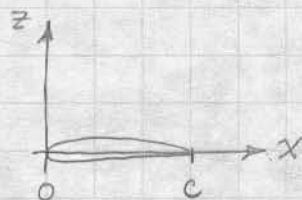


Thin Airfoil Theory Glossary

x, z General coordinates in 2-D airfoil plane

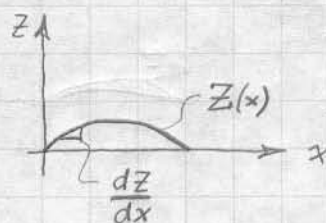


ξ Parameter along airfoil. (numerically, $\xi = x$).
Also used as dummy variable of integration.



$Z(x)$ Value of z on camberline at some x

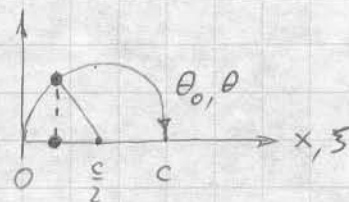
$\frac{dZ}{dx}(x)$ Slope of camberline at some x



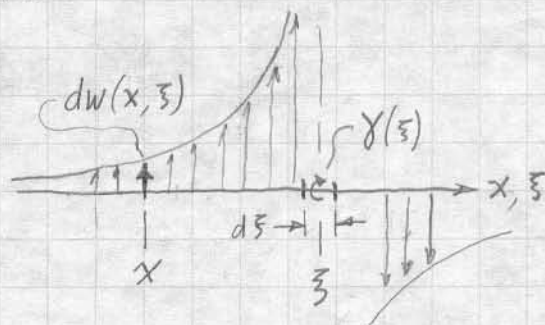
θ_0 Transformed x on airfoil: $x = \frac{c}{2}(1 - \cos\theta_0)$

θ Transformed ξ on airfoil: $\xi = \frac{c}{2}(1 - \cos\theta)$

(In 18.01, $x \rightarrow \theta_0$ and $\xi \rightarrow \theta$ are called "trigonometric substitutions")

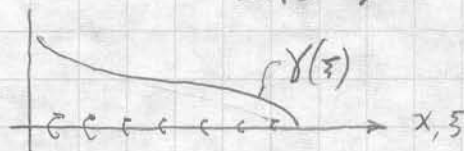


$dw(x, \xi)$ Vertical velocity at x , due to $d\xi$ -long piece of vortex sheet $\gamma(\xi)$



$$dw(x, \xi) = \frac{\gamma d\xi}{2\pi(\xi - x)}$$

$w(x)$ Vertical velocity at x , due to entire vortex sheet $\gamma(\xi)$, $0 \leq \xi \leq c$



$$w(x) = \int dw = \int_0^c \frac{\gamma(\xi) d\xi}{2\pi(\xi - x)}$$

