F9+F10. The circulation distribution on a wing is

$$\Gamma(\theta) \;=\; 2bV_\infty \left(A_1 \sin\theta \;+\; A_2 \sin 2\theta\right)$$

where $A_1 = 0.05$, and $A_2 = 0.01$.

a) Determine and plot $\alpha_i(y)$.

b) Determine the rolling moment on the entire wing.

$$M_{\text{roll}} \;=\; \int_{-b/2}^{b/2} \rho\, V_\infty\, \Gamma\, y\, dy$$