AEM 313 Problem Set #6

Due: 23rd October 2017

1. Compute the "induced" velocity at the center of a 2 foot circular ring-vortex of strength 10 ft²/s.
2. Given a wing of b=40 ft with an elliptical lift distribution generating 3000 lbf of lift at SSL, determine the shed vorticity distribution.
3. For the above wing, determine the downwash velocity along the wing's quarter chord.
4. Compute the induced drag coefficient for an AR=10 elliptical wing.
5. Compute the induced drag coefficient for an AR=10 elliptical wing in ground effect. Plot induced drag as a function of height (h/b).