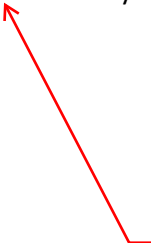


## AEM 313 Problem Set #7

Due: 30<sup>th</sup> October 2017

1. Estimate  $CL$  for a flat Hersey bar wing (i.e. constant chord) of  $AR=8$  operating at  $AOA=5$  degrees. The wing uses the NACA 4414 as airfoil sections.
2. Estimate the thrust and power required to generate the trailing vortices for an Airbus A380 at gross weight (1.268 million pounds) and 150 knots.
3. Using the prl2 software, design an  $AR=8$  constant chord wing using the NACA 0012 operating at  $CL=0.5$  with a minimum of induced drag. How did you approach your design? Discuss off-design operations.



Use a linearly twisted wing, otherwise this problem is more difficult.