

**AAE 519 Prof. Schneider, Fall 2009**

**Problem Set 5**

**Handed Out: Friday, 16 October**

**Due: Friday, 23 October**

Derive the similarity solution for the Falkner-Skan boundary layers (cf. section 4-3.3 in White's Viscous Flow text).

Using the **FORTRAN** code that was emailed to you, obtain solutions to the ordinary differential equation. Process these solutions to evaluate the Reynolds analogy for selected cases, for adverse and favorable pressure gradients. For this, you will need to integrate the boundary-layer profiles in similarity form, and convert the results to the appropriate non-dimensional form.

Your results should again be provided in the form of a brief report. Describe the problem, your methods, your results, and provide a summary. Include the details of the derivations in an appendix.