16.100 Homework Assignment # 11
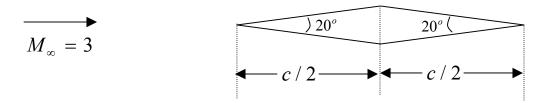Due: Monday, December 1, 9am

Reading Assignment
Anderson, 3rd edition: Chapter 9 (all of it)
Anderson, 2nd edition: Chapter 9 (all of it)

Problem 1

Using shock-expansion theory, calculate the lift and drag coefficient on the symmetric diamond airfoil shown below at a freestream Mach number of 3 and zero angle of attack.
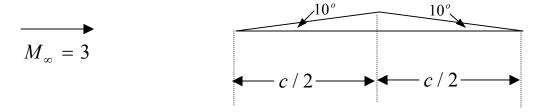

Problem 2

Calculate the lift and drag coefficient for the same airfoil and flow given in Problem #1 using supersonic linearized potential flow theory.

Problem 3

Using shock-expansion theory, calculate the lift and drag coefficient for an airfoil which is the upper-half of the diamond airfoil from Problem #1 shown below at a freestream Mach number of 3 and zero angle of attack.

Problem 4

Calculate the lift and drag coefficient for the same airfoil and flow given in Problem #3 using supersonic linearized potential flow theory.