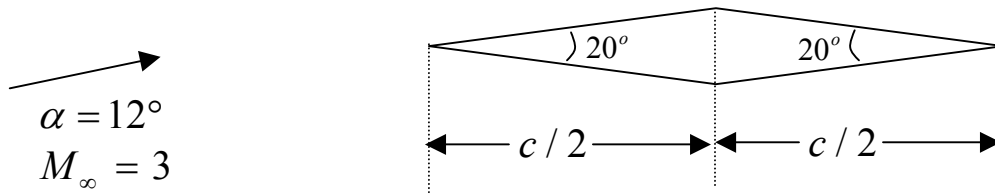**Reading Assignment**
Anderson, 3rd edition: Chapter 9 (all of it)
Also, if you do not remember too much about normal shock waves, look at Chapter 8

Problem 1
a) Using shock-expansion theory, calculate the lift coefficient on the symmetric diamond airfoil shown below at a freestream Mach number of 3 and 12 degree angle of attack.

b) Draw the shock and expansion waves on the airfoil at these conditions (ignore the trailing edge). Include sketches of the streamlines that are consistent with shock-expansion theory near the upper and lower surfaces of the airfoil.

Problem 2
a) Using shock-expansion theory, calculate the lift *and drag* coefficients for an airfoil shown below at a freestream Mach number of 3 and zero angle of attack.
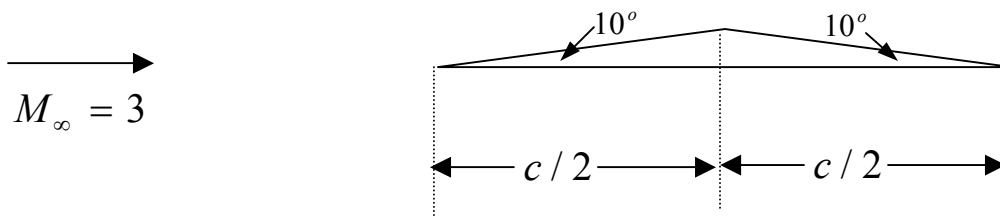
b) Draw *all* shock and expansion waves on the airfoil at these conditions *including those at the trailing edge*. Include sketches of the streamlines that are consistent with shock-expansion theory near the upper and lower surfaces of the airfoil *including the flow just behind the trailing edge.* Consider the dividing streamline from the trailing edge such that flow leaving the upper surface is above and flow leaving the lower surface is below this streamline. Which of the following properties are the same on both sides of the dividing streamline for this airfoil (after any trailing edge shock or expansion waves)?

      i)   stagnation pressure
      ii)   stagnation temperature
      iii)   static pressure
      iv)   velocity magnitude

Note: no calculation is necessary in this part of the problem (i.e. part 2.b). State your results *and* provide your reasoning.