

**AE 6020 High-Speed Flow  
Assignment #2**

1. Exercise 2.2 from Chapter II of the online lecture notes
2. In some potential flow calculations the density is normalized with respect to the stagnation density ( $\rho_0$ ) and the velocity is normalized by the critical speed of sound

( $a^*$ ). In such a case show that the density can be written: 
$$\left(\frac{\rho}{\rho_0}\right) = \left[1 - \frac{\gamma - 1}{\gamma + 1} \left(\frac{V}{a^*}\right)^2\right]^{\frac{1}{\gamma - 1}}$$

3. Exercise 3.2 from Chapter III of the online lecture notes