AE339: High-speed aerodynamics
Tutorial 7

1. What is an appropriate velocity potential equation for transonic flows?

2. Neglecting the effects of skin friction and using modified Newtonian flow model to describe the pressure distribution, derive an expression for the drag coefficient for a sphere or radius R. (Hint: On the surface of the sphere, $x^2 + y^2 = 2xR$. Recall that $\left(\frac{dy}{ds}\right)^2 = \frac{y'^2}{1+y'^2}$ where $y' = \frac{dy}{dx}$.)