

16.120 Compressible Flow

Problem Set # 7

Assigned: May 1, 2003

Due: May 8, 2003

- (a) Using the conservation principles, “derive” the governing equation for the unsteady potential flow of a compressible, inviscid gas over a two-dimensional body.

- (b) Assume small disturbances (thin bodies, small angle of attack, etc.), deduce the non-linear unsteady transonic flow equation for an inviscid gas over a two-dimensional thin body. This equation governs the perturbation velocity potential. Please state all assumptions and their physical implications that you applied in order to obtain your results.