

16.120 Compressible Flow

Problem Set # 5

Assigned: April 15, 2003

Due: April 24, 2003

Derive Crocco's vorticity law in the absence of body forces. Under what flow conditions will both the total energy per unit mass (stagnation enthalpy) and entropy be uniform?

What form does Crocco's vorticity law take in the limit of steady flows with uniform entropy? What is the correct interpretation of this equation?

Define the relationship between Crocco's vorticity law and Bernoulli's equation.