

AME 538

Homework 13

Due: Monday, 25 September 2000, in class

1. For a steady, incompressible, inviscid flow with $\rho = 1000 \text{ kg/m}^3$, $v_1 = (1 \text{ s}^{-1})x_2$, $v_2 = (1 \text{ s}^{-1})x_1$, $P(0, 0) = 100 \text{ kPa}$, give a computer generated plot of the streamlines, velocity vector field, acceleration vector field, and isobars. Put everything on a single plot. Show how you obtain each field. Show how the pressure field can be obtained from a Bernoulli's equation as well as a direct integration of the linear momenta equations.