

Problem 140C

Find expressions for the vorticity as a function of the coordinate, y , perpendicular to the velocity vector in the following incompressible Newtonian fluid flows:

- (A) Couette flow
- (B) Planar Poiseuille flow
- (C) The Couette flow of Problem 150D involving layers of two different fluids.
- (D) The flow in Problem 150B where the vorticity will also be a function of time.
- (E) In a steady, vortical flow in which the velocity in the θ direction is given by $Ar + (B/r)$ where A and B are constants. Here the vorticity is a function of the radial coordinate, r .