

9.73 Consider the boundary layer next to the smooth hull of a ship. The ship is cruising at a speed of 30 ft/s in 60°F fresh water. Assuming that the boundary layer on the ship hull develops the same as on a flat plate, determine

- The thickness of the boundary layer at a distance of 100 ft downstream from the bow.
- The velocity of the water at a point in the boundary layer at $y/\delta = 0.50$.
- The shear stress, τ_0 , adjacent to the hull at this position.

FIGURE 9.12

Velocity-defect law for boundary layers. [After Rouse (10)].

