9.59 Use the integral method represented by Eq. (9.44) and the following relationship between shear stress and boundary layer thickness,

$$\frac{\tau_0}{\rho} = 0.0225 U_0^2 \left(\frac{\nu}{U_0 \delta} \right)^{1/4}$$

to find the variation of boundary layer thickness with x and Re_x, the variation of local shear stress coefficient with Re_x and the variation of average shear stress coefficient with Re_L. Assume the boundary layer profile is given by

$$\frac{u}{U_0} = \left(\frac{y}{\delta} \right)^{1/7}$$