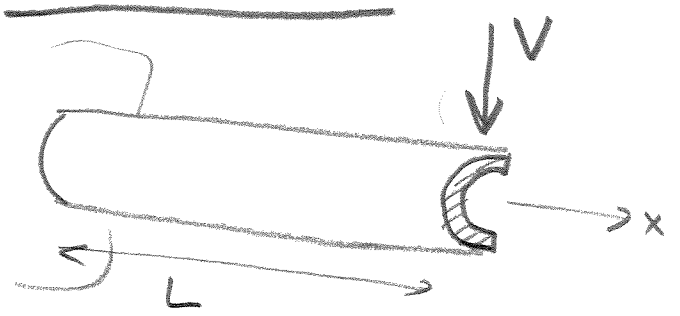
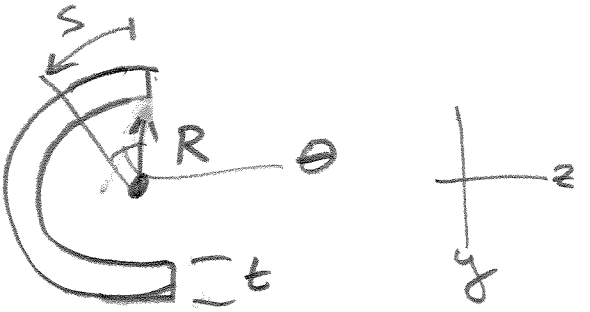
Web Problems

(1)





The beam of semi-circular cross-section ($R \gg t$) is subject to shear load V. Use the methods in class to find the shear stress $\tau_{\theta x}$ as a function of R, t, V and θ (which replaces s since $s = r\theta$).

Then verify by integration that the shear stress integrates to V that is $V \stackrel{?}{=} \int \tau_{\theta x} \left(\begin{matrix}\text{trig factor} \\ \text{for } y \\ \text{direction}\end{matrix}\right) dA$

(2) Locate the shear center for the problem in (1)

