



$$I_x = 80.9$$

$$I_y = 38.8$$

$$S_{xy} dA = \int_{-1.65}^{5.35} (-1.65 + 0.5t)y(t dy) + \int_{-2.65}^{-1.65} (b/2 - 1.65)y(b dy)$$

$$\text{for } t=1 \text{ \& } b=6$$

$$\int_{-1.65}^{5.35} (-1.15)y dy + \int_{-2.65}^{-1.65} (1.35)y dy$$

$$= -1.15 \frac{y^2}{2} \Big|_{-1.65}^{5.35} + 1.35 \frac{y^2}{2} \Big|_{-2.65}^{-1.65}$$

$$I_{xy} = -32.3075$$

Save time, FROM AISC, $\alpha = 28.5^\circ$, $\cos \alpha = 0.8788$, $\sin \alpha = 0.47716$

$$I_{min} = \frac{I_x + I_y}{2} - \sqrt{\left(\frac{I_x - I_y}{2}\right)^2 + I_{xy}^2} \quad (\text{Timoshenko})$$

$$\therefore I_{min} = 21.29 \text{ in}^4 \quad (\text{AISC says } 21.3 \text{ in}^4), \text{ OK}$$