

39. We use the parallel axis theorem: $I = I_{\text{com}} + Mh^2$, where I_{com} is the rotational inertia about the center of mass (see Table 11-2(d)), M is the mass, and h is the distance between the center of mass and the chosen rotation axis. The center of mass is at the center of the meter stick, which implies $h = 0.50\text{ m} - 0.20\text{ m} = 0.30\text{ m}$. We find

$$I_{\text{com}} = \frac{1}{12}ML^2 = \frac{1}{12}(0.56\text{ kg})(1.0\text{ m})^2 = 4.67 \times 10^{-2}\text{ kg}\cdot\text{m}^2 .$$

Consequently, the parallel axis theorem yields

$$I = 4.67 \times 10^{-2}\text{ kg}\cdot\text{m}^2 + (0.56\text{ kg})(0.30\text{ m})^2 = 9.7 \times 10^{-2}\text{ kg}\cdot\text{m}^2 .$$