

4. The rotational kinetic energy is $K = \frac{1}{2}I\omega^2$, where $I = mR^2$ is its rotational inertia about the center of mass (Table 11-2(a)), $m = 140$ kg, and $\omega = v_{\text{com}}/R$ (Eq. 12-2). The asked-for ratio is

$$\frac{K_{\text{transl}}}{K_{\text{rot}}} = \frac{\frac{1}{2}mv_{\text{com}}^2}{\frac{1}{2}(mR^2)(v_{\text{com}}/R)^2} = 1 .$$