

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\omega = \frac{v}{r} = \frac{5.0}{0.25} = 20 \text{ rad s}^{-1}$

2.2

- $v = \omega r$ (the centre's speed equals angular speed times radius)

2.3

- the solid cylinder (smaller rotational inertia)

3.1 A

3.2 C

3.3

(a)

- $\omega = \frac{3.0}{0.10} = 30 \text{ rad s}^{-1}$

(b)

- $I = \frac{1}{2}(2.0)(0.10)^2 = 0.010 \text{ kg m}^2$; $K = \frac{1}{2}(2.0)(3.0)^2 + \frac{1}{2}(0.010)(30)^2 = 9.0 + 4.5 = 13.5 \text{ J}$