Solutions

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

2.1

- $K_{rot} = \frac{1}{2}(0.50)(4.0)^2 = 4.0$ J

2.2

- $K = 6.0 + 2.4 = 8.4$ J

2.3

- The sphere has a smaller rotational inertia for its mass, so less energy goes into rotation and more into translation, giving a larger speed

3.1 B

3.2 B

- the disc has the smaller rotational inertia

3.3

(a)

- $K_{rot} = \frac{1}{2}(0.10)(12)^2 = 7.2$ J

(b)

- $mgh = 7.2 \Rightarrow h = \dfrac{7.2}{0.20 \times 10} = 3.6$ m