

Solutions

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

2.1

- $I = \sum mr^2 = 2 \times (0.50)(0.40)^2 = 0.16 \text{ kg m}^2$

2.2

- it increases (each contributes mr^2 , which grows with r)

2.3

- $I = \frac{1}{2}(4.0)(0.30)^2 = 0.18 \text{ kg m}^2$

3.1 B

3.2 B

- a hoop has all its mass at the rim, $I = MR^2$

3.3

(a)

- $I = mr^2 = 0.20 \times (0.50)^2 = 0.050 \text{ kg m}^2$

(b)

- 0 — a point mass has no size, so $I = 0$ about an axis through it