

Solutions

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

2.1

- The net torque about any axis is zero

2.2

- $\tau = 30 \times 0.4 = 12 \text{ N m}$

2.3

- Net force zero ($\sum F = 0$) and net torque zero ($\sum \tau = 0$)

2.4

- 40 N m

3.1 B

- the net torque is zero

3.2 B

- the two torques are equal in size (and opposite in sense)

3.3

(a)

- $\tau = 50 \times 0.6 = 30 \text{ N m}$

(b)

- $30 = 30 \times d \Rightarrow d = 1.0 \text{ m}$

3.4

(a)

- At its centre, 1 m from each end

(b)

- The weight acts 0.5 m right of the pivot, giving an unbalanced clockwise torque, so it rotates unless supported