

Solutions

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

2.1

- the net force is zero **and** the net torque is zero

2.2

- $200 \times 1.0 = 200 \text{ N m}$ clockwise

2.3

- 20 N on each — the plank is uniform and symmetric, so its weight splits equally

3.1 B

3.2 B

3.3

(a)

- torques about the right support: $L(4.0) = 80(2.0) + 120(3.0) = 160 + 360 = 520$, so $L = 130 \text{ N}$

(b)

- $R = (80 + 120) - 130 = 70 \text{ N}$