Exercise 3.4B Calculating moments

1 moment = force × distance (from pivot)

2 **a** moment = force × distance
= 15 000 × 5
= 75 000 (N m)

b **i** will increase the moment

ii will decrease the moment

3 pounds foot / pounds feet / foot pounds

Exercise 3.4C Moments, force and distance

1 **a** moment = force × distance

$$\text{force} = \frac{\text{moment}}{\text{distance}}$$

$$= \frac{40}{0.2}$$

$$= 200\ \text{N}$$

b Increasing distance will increase the moment using the same force.

2 $$\text{force} = \frac{\text{moment}}{\text{distance}}$$

$$= \frac{350}{0.35}$$

$$= 1000\ \text{N}$$

3 **a** moment = force × distance
= 500 × 2
= 1000 Nm

b moment = force × distance

$$\text{force} = \frac{\text{moment}}{\text{distance}}$$

$$= \frac{1000}{400}$$

$$= 2.5\ \text{m}$$

Topic 3.4 Turning forces

Exercise 3.4A Identifying turning forces

1 Ticks next to: pushing a door open, twisting the top off a bottle, and pushing the hands of a clock around.

2 Ticks next to the tap, gate and door handle.

3 moment