Solutions

Marking: **M1** a correct method, **A1** the correct answer.

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

2.1

- to the nearest cm, error is 0.5 cm
- lower bound **23.5** cm

2.2

- to 1 d.p., error is 0.05 kg
- upper bound **3.55** kg

2.3

- to the nearest 10 s, error is 5 s
- lower bound **35** s, upper bound **45** s

2.4

- half of 0.1 is 0.05: bounds 6.35 and 6.45
- $\mathbf{6.35 \leqslant l < 6.45}$

2.5

- bounds 2.65 and 2.75
- $\mathbf{2.65 \leqslant x < 2.75}$

3.1

(a)

- upper bounds 12.5 cm and 7.5 cm

$$12.5 \times 7.5 = \mathbf{93.75}\ \text{cm}^2$$

(b)

- lower bounds 11.5 cm and 6.5 cm

$$2(11.5 + 6.5) = \mathbf{36}\ \text{cm}$$

3.2

- largest speed = largest distance ÷ smallest time
- distance UB = 95 m, time LB = 7.95 s

$$\text{speed} = \frac{\text{distance}}{\text{time}} = \frac{95\ \text{m}}{7.95\ \text{s}} = \mathbf{11.9}\ \text{m/s}$$

(3 s.f.)

3.3

- largest a minus smallest b: $8.65 - 2.35$
- $= \mathbf{6.3}$

3.4

- largest a divided by smallest b: $\dfrac{8.65}{2.35}$
- $= 3.6808\ldots = \mathbf{3.68}$

3.5

- lower bound of the area: 49.5 cm^2
- side $= \sqrt{49.5}$
- $= 7.0356\ldots = \mathbf{7.04}$ cm