Solutions

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

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

2.1

- $\sqrt{6^2 + 8^2} = \sqrt{100}$

$$= \mathbf{10} \text{ cm}$$

2.2

- use the base diagonal 10 cm with the height 10 cm
- $\sqrt{10^2 + 10^2} = \sqrt{200}$

$$= 14.142\ldots = \mathbf{14.1} \text{ cm}$$

- equivalently $\sqrt{6^2 + 8^2 + 10^2}$ in one line

2.3

- the triangle has the base diagonal 10 cm and the height 10 cm, with the right angle between them
- $\tan\theta = \dfrac{10}{10} = 1$

$$\theta = \mathbf{45.0}^\circ$$

3.1

(a)

- the base diagonal $= \sqrt{10^2 + 10^2} = \sqrt{200} = 14.142\ldots$ cm
- the centre is halfway along it

$$14.142 \div 2 = \mathbf{7.07} \text{ cm}$$

(b)

- the slant edge, the height and the half-diagonal form a right-angled triangle
- slant $= \sqrt{12^2 + 7.071^2} = \sqrt{194}$

$$= 13.928\ldots = \mathbf{13.9} \text{ cm}$$

(c)

- $\tan\theta = \dfrac{12}{7.071}$

$$\theta = 59.49\ldots = \mathbf{59.5}^\circ$$

- the horizontal side is the HALF-diagonal, not the full one and not the side of the square