

Solutions

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

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

2.1

$$\frac{\sqrt{3}}{2}$$

2.2

$$1$$

2.3

$$\frac{\sqrt{3}}{2}$$

3.1

- opposite = hypotenuse $\times \sin 30^\circ = 12 \times \frac{1}{2}$
 $= 6 \text{ cm}$

3.2

- split the triangle down the middle to make a 30–60–90 triangle
- the height = $8 \sin 60^\circ = 8 \times \frac{\sqrt{3}}{2} = 4\sqrt{3} \text{ cm}$
- area = $\frac{1}{2} \times 8 \times 4\sqrt{3}$
 $= 16\sqrt{3} \text{ cm}^2$

3.3

- $\sin 45^\circ = \frac{\sqrt{2}}{2}$, so $x = 45^\circ$
- sin is also positive in the second quadrant, so $x = 180 - 45$

$$x = 45^\circ \text{ or } 135^\circ$$