

Solutions

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

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

2.1

- tangents from an external point are equal in length

$$TB = \mathbf{7 \text{ cm}}$$

2.2

-

$$\mathbf{90^\circ}$$

2.3

- the alternate segment theorem gives the same angle

$$= \mathbf{58^\circ}$$

3.1

(a)

- the tangent meets the radius at the point of contact

$$\mathbf{90^\circ}$$

(b)

- $OATB$ is a quadrilateral, so its angles add to 360°
- angles OAT and OBT are both 90°

$$360 - 90 - 90 - 46 = \mathbf{134^\circ}$$

3.2

- the perpendicular from the centre bisects the chord, so half of it is 12 cm
- Pythagoras with the radius as the hypotenuse: $d = \sqrt{13^2 - 12^2}$

$$= \sqrt{25} = \mathbf{5 \text{ cm}}$$