Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

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

2.1

- $\pi \times 9 = 28.27\ldots = \mathbf{28.3}$ cm

2.2

- $\pi \times 5^2 = \mathbf{25}\pi$ cm^2

2.3

- $r = 6$, $\pi \times 6^2$
- $= 113.09\ldots = \mathbf{113}$ cm^2

2.4

- $\frac{90}{360} \times 2\pi \times 10$
- $= \mathbf{15.7}$ cm

2.5

- curved edge $\frac{1}{2} \times 2\pi \times 4 = 12.57$ cm
- $12.57 + 8 = \mathbf{20.6}$ cm

3.1

(a)

- $\pi \times 64 = 201.06\ldots = \mathbf{201}$ cm

(b)

- 1 km $= 100\,000$ cm; $100\,000 \div 201.06 = 497.3\ldots$
- **497** complete turns

3.2

(a)

- $\frac{40}{360} \times 2\pi \times 9$
- $= 2\pi = \mathbf{6.28}$ cm

(b)

- $\frac{40}{360} \times \pi \times 9^2$
- $= 9\pi = \mathbf{28.3}$ cm^2

3.3

- $\pi r^2 = 80$, $r^2 = 80 \div \pi = 25.46\ldots$
- $r = \mathbf{5.05}$ cm

3.4

(a)

- rectangle $12 \times 8 = 96$ m^2
- semicircle $\frac{1}{2} \times \pi \times 4^2 = 25.13$ m^2
- total **121** m^2

(b)

- straight edges $12 + 8 + 12 = 32$ m
- curved edge $\frac{1}{2} \times 2\pi \times 4 = 12.57$ m
- total **44.6** m

(c)

- $44.57 \times 35 = \mathbf{1560}$ yuan