

(b) 該圓的面積 = $\pi \times \left(\frac{80}{2\pi}\right)^2 \text{ cm}^2$ 1M
 = 510 cm² (準確至三位有效數字) 1A

3.

(a) 該圓柱的體積 = $\pi \times 8^2 \times 14 \text{ cm}^3 = \underline{2813.4 \text{ cm}^3}$ 1M+1A
 (答案須取至少數點後一個位。)

(b) 該圓柱的曲面面積 = $2\pi \times 8 \times 14 \text{ cm}^2 = \underline{703.4 \text{ cm}^2}$ 1M+1A
 (答案須取至少數點後一個位。)

4.

(a) 設扇形的半徑是 $r \text{ cm}$ 。

$$\frac{60^\circ}{360^\circ} \times 2\pi r = 12 \quad \text{1M}$$

$$r = \frac{12 \times 360^\circ}{2\pi \times 60^\circ}$$

$$= 11 \text{ (準確至兩位有效數字)}$$

11.459

\therefore 扇形的半徑是 11 cm。 1A

(b) 扇形的面積 = $\frac{60^\circ}{360^\circ} \times \pi \times 11^2 \text{ cm}^2$ 1M
 = 63 cm² (準確至兩位有效數字) 1A

5.

設扇形角為 θ 。

$$\frac{\theta}{360^\circ} \times 2\pi \times 12 + 2 \times 12 = 48$$

$$\frac{\theta}{360^\circ} \times 24\pi = 24 \quad \text{1M+1A}$$

$$\frac{\theta}{360^\circ} = \frac{1}{\pi}$$

$$\text{扇形的面積} = \frac{\theta}{360^\circ} \times \pi \times 12^2 \text{ cm}^2$$

$$= \frac{1}{\pi} \times \pi \times 12^2 \text{ cm}^2$$

$$= \underline{144 \text{ cm}^2}$$

1M+1A

長題目 (10 分)

1.

(a) 該鐵線的長度 = $2 \times \pi \times 10 \text{ cm}$ 1M
= $20\pi \text{ cm}$ 1A

$$\widehat{AB} = \frac{60^\circ}{360^\circ} \times 2\pi r \text{ cm} = \frac{\pi}{3} r \text{ cm} \quad \text{1M+1A}$$

$$\therefore 2r + \frac{\pi}{3}r = 20\pi \quad \text{1M}$$

$$r\left(2 + \frac{\pi}{3}\right) = 20\pi$$

$$r = \underline{20.6} \text{ (準確至三位有效數字)} \quad \boxed{20.6126914661} \quad \text{1A}$$

(b) $\widehat{AB} = \frac{\pi}{3} \times 20.6126914661 \text{ cm}$ 1M

$$= \underline{21.6 \text{ cm}} \text{ (準確至三位有效數字)} \quad \boxed{21.5746170678} \quad \text{1A}$$

(c) 扇形的面積 = $\frac{\theta}{360^\circ} \times \pi \times r^2 \text{ cm}^2$

$$= \frac{60^\circ}{360^\circ} \times \pi \times (21.5746170678)^2 \text{ cm}^2 \quad \text{1M}$$

$$= \underline{244 \text{ cm}^2} \text{ (準確至三位有效數字)} \quad \boxed{243.592879848} \quad \text{1A}$$