

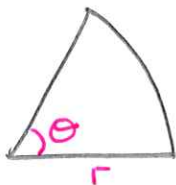
①
a)

$$\frac{\sin C}{5} = \frac{\sin 0.6}{4}$$

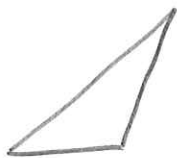
$$C = 0.784$$

$$\therefore B = \pi - 0.784 - 0.6 = 1.76$$

b) $CBD = \pi - 1.76$



$$\begin{aligned} \text{Area} &= \frac{1}{2} \pi r^2 \times \theta = \frac{1}{2} \times 16\pi \times (\pi - 1.76) \\ &= 11.1 \end{aligned}$$



$$\begin{aligned} \text{Area} &= \frac{1}{2} ac \sin B = \frac{1}{2} (5)(4) \sin 1.76 \\ &= 9.82 \end{aligned}$$

$$\text{Total} = 11.1 + 9.82$$

$$= \underline{\underline{20.9}}$$

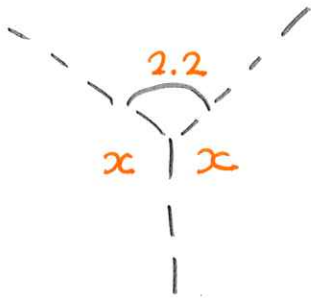
2

a)



$$\begin{aligned}\text{Area} &= \pi r^2 \times \frac{\theta}{2\pi} = \pi 6^2 \times \frac{2.2}{2\pi} \\ &= 39.6\end{aligned}$$

b)



$$x = \frac{2\pi - 2.2}{2} = 2.04$$

c)



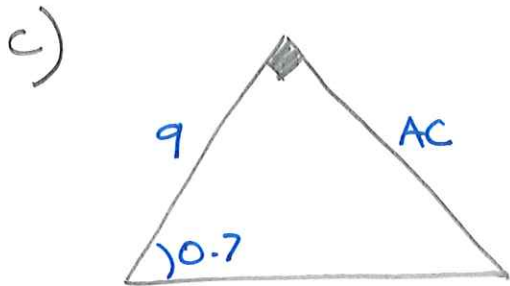
$$\text{Area} = \frac{1}{2} \times 6 \times 4 \times \sin 2.04 = 10.7$$

$$\begin{aligned}\text{Total Area} &= 39.6 + 10.7 + 10.7 \\ &= \underline{\underline{61}}\end{aligned}$$

3

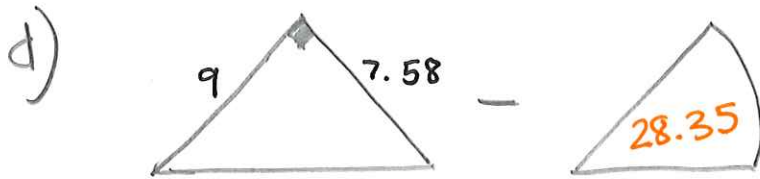
a) $\text{Arc} = r\theta$ $0.7 \times 9 = \underline{\underline{6.3}}$

b) $\text{Area Sector} = \frac{1}{2}r^2\theta$ $\frac{1}{2} \times 9^2 \times 0.7 = \underline{\underline{28.35}}$



$$\tan 0.7 = \frac{AC}{9}$$

$$AC = 9 \tan 0.7 = \underline{\underline{7.58}}$$

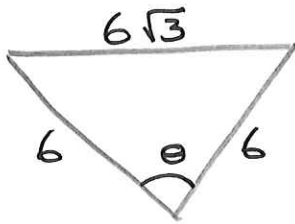


$$\begin{aligned}\text{Area} &= \frac{9 \times 7.58}{2} \\ &= 34.11\end{aligned}$$

$$\text{Area}_H = 34.11 - 28.35 = \underline{\underline{5.76}}$$

4

a)



$$\cos \theta = \frac{6^2 + 6^2 - (6\sqrt{3})^2}{2(6)(6)}$$

$$\cos \theta = -\frac{1}{2}$$

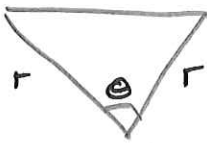
$$\theta = \underline{\underline{\frac{2\pi}{3}}}$$

b)



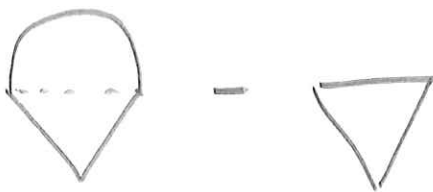
$$\text{Area} = \frac{1}{2} r^2 \theta = \frac{1}{2} \times 6^2 \times \frac{2\pi}{3} = \underline{\underline{12\pi}}$$

c)



$$\text{Area} = \frac{1}{2} \times 6 \times 6 \times \sin \frac{2\pi}{3} = \underline{\underline{9\sqrt{3}}}$$

d)



$$12\pi - 9\sqrt{3} = \underline{\underline{22.1}}$$

e)

$$\text{Perimeter} = 6 + 6 + r\theta$$

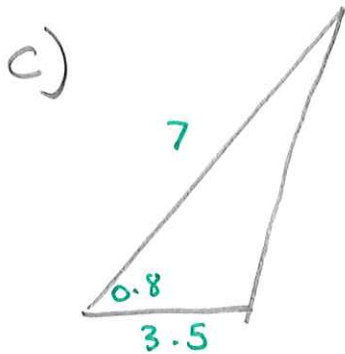
$$= 6 + 6 + \left[6 \times \frac{2\pi}{3} \right]$$

$$= \underline{\underline{24.6}}$$

5

a) $\text{Arc} = \theta r$ $0.8 \times 7 = \underline{\underline{5.6}}$

b) $\text{Area Sector} = \frac{1}{2} r^2 \theta$ $\frac{1}{2} \times 7^2 \times 0.8 = \underline{\underline{19.6}}$



$$BD^2 = 7^2 + 3.5^2 - 2(7)(3.5)\cos(0.8)$$

$$BD = 5.21$$

$$\text{Perimeter} = 5.21 + 3.5 + 5.6 = \underline{\underline{14.3}}$$

d)

Diagram showing the area of a sector (19.6) minus the area of a triangle to find the area of a circular segment.

$$\frac{1}{2} \times 7 \times 3.5 \sin 0.8 = 8.79$$

$$\text{Area}_R = 19.6 - 8.79 = \underline{\underline{10.81}}$$