

## REVISION D SOLUTIONS

$$\textcircled{1} \quad \text{Area square} = 2(2) = 4$$

$$\begin{aligned} \text{Area sector} &= \frac{1}{2} r^2 \theta \\ &= \frac{1}{2} (2)^2 \left( \frac{\pi}{2} \right) = \pi \end{aligned}$$

$$\therefore \text{Area shaded} = \boxed{4 - \pi}$$

$$\textcircled{2} \quad \text{(i)} \quad 40 = r + r + rX$$

↑  
length of arc

$$\therefore 40 = 2r + rX$$

$$\therefore 40 - 2r = rX$$

$$\boxed{\frac{40 - 2r}{r} = X}$$

$$\text{(ii)} \quad \text{Area} = \frac{1}{2} r^2 \theta$$

$$100 = \frac{1}{2} r^2 \left( \frac{40 - 2r}{r} \right)$$

$$200 = r(40 - 2r)$$

$$200 = 40r - 2r^2$$

$$2r^2 - 40r + 200 = 0$$

$$r^2 - 20r + 100 = 0$$

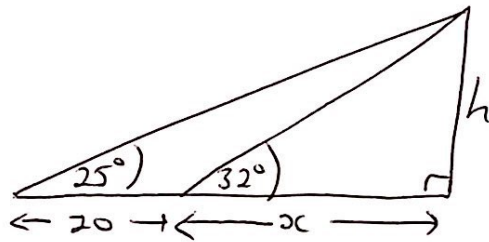
$$(r - 10)(r - 10) = 0$$

$$\boxed{r = 10 \text{ cm}}$$

$$\text{(iii)} \quad X = \frac{40 - 2r}{r} = \frac{40 - 2(10)}{10} = \boxed{2 \text{ radians}}$$

③ (i) CLINOMETER

(ii)



$$\tan 32^\circ = \frac{h}{x}$$

$$\therefore h = x \tan 32^\circ$$

$$\tan 25^\circ = \frac{h}{20+x}$$

$$\therefore h = (20+x) \tan 25^\circ$$

$$\therefore x \tan 32^\circ = (20+x) \tan 25^\circ$$

$$\therefore 0.625x = 9.326 + 0.466x$$

$$\therefore 0.159x = 9.326$$

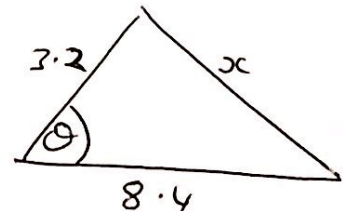
$$\therefore x = 58.65$$

$$\therefore h = 58.65 \tan 32^\circ = 36.65$$

$$\approx \boxed{36.7 \text{ m}}$$

④ Area =  $\frac{1}{2} ab \sin C$

$$10 = \frac{1}{2} (3.2)(8.4) \sin \theta$$



$$\therefore 0.744 = \sin \theta$$

$$\therefore \theta = 48^\circ$$

$$x^2 = (3.2)^2 + (8.4)^2 - 2(3.2)(8.4) \cos 48^\circ$$

$$x = 6.7$$

$$\therefore \text{Perimeter} = 3.2 + 8.4 + 6.7$$

$$= \boxed{18.3}$$

⑤ (i)  $y = 3 \cos x$

Period =  $360^\circ$

Range =  $[-3, 3]$

(ii)  $y = 2 \sin 2x$

Period =  $180^\circ$

Range =  $[-2, 2]$

(iii)  $y = 4 \sin 3x$

Period =  $120^\circ$

Range =  $[-4, 4]$