

Date:

مسئله ۱
" سوال ۱ " $\frac{1}{\text{مسئله ۱}}$

الف) $\frac{D}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \frac{12}{1\text{m}} = \frac{\alpha}{\pi} \Rightarrow \alpha = \frac{12\pi}{1\text{m}}$

سوال ۱
 $\frac{12\pi}{1\text{m}}$

ب) $\frac{12\pi}{1\text{m}} = \frac{\alpha}{\pi} \Rightarrow \frac{12\pi}{1\text{m}} = \frac{12\pi}{1\text{m}}$

ج) $\frac{\frac{a\pi}{12}}{\pi} = \frac{\alpha}{1\text{m}} \Rightarrow \alpha = \frac{a\pi \times 1\text{m}}{12} = 75^\circ$

د) $\frac{\frac{a\pi}{12}}{\pi} = \frac{n}{1\text{m}} \Rightarrow \frac{a}{12} = \frac{n}{1\text{m}} \Rightarrow \alpha = 120^\circ$

$\frac{D}{1\text{m}} = \frac{\text{rad}}{\pi} = \frac{G}{1\text{m}} \Rightarrow \frac{12a}{1\text{m}} = \frac{D}{1\text{m}} \Rightarrow D = 12a$

سوال ۲

$\frac{\frac{a\pi}{12}}{\pi} = \frac{D}{1\text{m}} \Rightarrow D = \frac{12a}{12} = 12a$

$\Rightarrow 10a + 12a + 12a = 120 \Rightarrow 34a = 120$

$a = 3.5$

سوال ۳

الف) $\frac{1}{2} \times \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} \times \frac{1}{2} - 1 + 2 = 1$

ب) $\frac{\frac{1}{2} + 1 + 2}{\sqrt{3} - \frac{\sqrt{3}}{2}} = \frac{\frac{5}{2}}{\frac{\sqrt{3}}{2}} = \frac{5}{\sqrt{3}} = \frac{5\sqrt{3}}{3}$

سوال ۴
 $\frac{2\sqrt{3}}{3} \left(1 - \frac{1}{2}\right) = \frac{2\sqrt{3}}{3} = \sqrt{3} = \tan \theta = \tan 60^\circ$
 $\frac{40}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \text{rad} = \frac{\pi}{3}$
 $\theta = 60^\circ$

$-\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = \sin^2 \theta \Rightarrow -\frac{1}{4} + \frac{3}{4} = \frac{1}{2} = \sin^2 \theta$

سوال ۵

$\pm \frac{1}{\sqrt{2}} = \sin \theta \Rightarrow \pm \frac{\sqrt{2}}{2} = \sin \theta \Rightarrow \sin \theta = \frac{\sqrt{2}}{2} \Rightarrow \theta = 45^\circ$

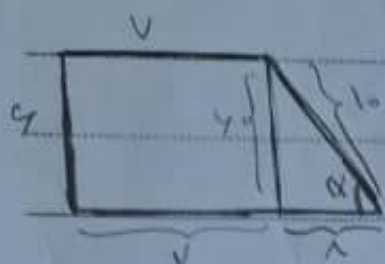
$\tan 45^\circ = 1$

$\tan \theta = \omega \Rightarrow \frac{\sin \theta}{\cos \theta} = \omega \Rightarrow \sin \theta = \omega \cos \theta$

سوال ۶

$\frac{12 \sin \theta - \cos \theta}{\sin \theta - 12 \cos \theta} = \frac{12 \cos \theta - \cos \theta}{\cos \theta} = \frac{11 \cos \theta}{\cos \theta} = 11$

Subject:



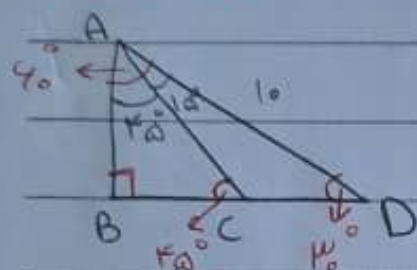
$$\sin \alpha = \frac{\text{ضلع مقابل}}{\text{وتر}} = \frac{4}{5}$$

سؤال ٧

$$(\overline{AD})^2 = (\text{ضلع عمودي})^2 + (\text{ضلع افقي})^2$$

$$100 = 4^2 + (\text{ضلع افقي})^2 \Rightarrow \text{ضلع افقي} = 8$$

$$\Rightarrow \text{مسافة} = 3 + 4 + 3 + 8 + 10 = 38$$



$$\sin 30^\circ = \frac{1}{2} = \frac{AB}{AC} \Rightarrow AB = 5$$

سؤال ٨

$$(AB)^2 + (BD)^2 = (AD)^2$$

$$5^2 + (BD)^2 = 10^2 \Rightarrow BD = \sqrt{75} = 5\sqrt{3}$$

$$\sin 60^\circ = \frac{\sqrt{3}}{2} = \frac{AB}{AC} \Rightarrow \frac{\sqrt{3}}{2} = \frac{5}{AC}$$

$$(AC)^2 = (BC)^2 + (AB)^2 \Rightarrow 100 = (BC)^2 + 25 \Rightarrow BC = 5 \leftarrow AC = 5\sqrt{3}$$

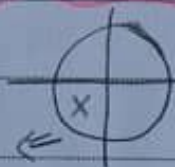
$$\Rightarrow BD - BC = CD \Rightarrow 5\sqrt{3} - 5$$

ج. راجع دوم

الف. راجع سوم

سؤال ٩

$$\tan m = \frac{1}{p}$$



$\sin \alpha$ و $\cos \alpha$

$$\tan m = \frac{\sin m}{\cos m} = \frac{1}{p} \Rightarrow \text{ضلع مجاور} = -1 \text{ و } \text{ضلع مقابل} = -p$$

$$\Rightarrow \overline{r} = \sqrt{(-p)^2 + (-1)^2} \Rightarrow \overline{r} = \sqrt{1+p^2}$$

$$\Rightarrow \sin m = \frac{\text{ضلع مقابل}}{\overline{r}} \Rightarrow \sin m = \frac{-1}{\sqrt{1+p^2}} = \boxed{\frac{-1}{\sqrt{1+p^2}}}$$

سؤال ١٠