

الف)  $2\pi \text{ rad} = \frac{D}{1\text{m}} \Rightarrow \frac{D}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \frac{2\pi}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \text{rad} = \frac{2}{\pi}$

ب)  $120^\circ = \frac{D}{1\text{m}} \Rightarrow \frac{D}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \frac{120}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \text{rad} = \frac{120}{\pi}$

ج)  $\frac{5\pi}{12} \text{ rad} = \frac{D}{1\text{m}} \Rightarrow \frac{D}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \frac{D}{1\text{m}} = \frac{5\pi}{12\pi} \Rightarrow D = \frac{5}{12}$

د)  $\frac{5\pi}{9} \text{ rad} = \frac{D}{1\text{m}} \Rightarrow \frac{D}{1\text{m}} = \frac{\text{rad}}{\pi} \Rightarrow \frac{D}{1\text{m}} = \frac{5\pi}{9\pi} \Rightarrow D = \frac{5}{9}$

$\frac{D}{1\text{m}} = \frac{6}{100} = \frac{\text{Rad}}{\pi} \Rightarrow$

$\frac{D}{1\text{m}} = \frac{120}{100} \Rightarrow$

سوال (2)

$\frac{D}{1\text{m}} = \frac{5\pi}{12} \Rightarrow D = \frac{5}{12}$

$D = \frac{120 \times 120}{100} = 144$

$10^\circ + 120^\circ + 120^\circ = 180^\circ$

$180^\circ < 180^\circ \Rightarrow \alpha = 180^\circ$

الف)  $\cos 45^\circ \cdot \cos 45^\circ - \sin 45^\circ \cdot \sin 45^\circ = \tan 45^\circ \cdot \cot 45^\circ$

سوال (3)

$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{2} - \left( \frac{\sqrt{2}}{2} \cdot \frac{1}{\sqrt{2}} \right) = -1 + 2(1) = 1$

ب)  $\frac{\tan 45^\circ \cdot \tan 45^\circ + \tan 45^\circ}{\cot 45^\circ - \cot 45^\circ} = \frac{\left(\frac{\sqrt{2}}{2}\right)^2 + (1)^2 + (\sqrt{2})^2}{\left(\frac{\sqrt{2}}{2}\right)^2 - \left(\frac{\sqrt{2}}{2}\right)^2} = \frac{\frac{3}{4} + 1 + 2}{\frac{3}{4} - \frac{3}{4}} = \frac{\frac{9}{4}}{0}$

$\frac{11\sqrt{2}\sqrt{2}}{11\sqrt{2} \times \sqrt{2}} = \frac{11\sqrt{2}}{11\sqrt{2}} = \frac{11\sqrt{2}}{11}$

$-\sin 30^\circ \cdot \cos 60^\circ + \cos 30^\circ \cdot \sin 60^\circ = \sin 2\theta$   
 $-\frac{1}{2} \cdot \frac{1}{2} + \frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} \Rightarrow \frac{1}{2} \Rightarrow \sin 2\theta$

$\sin 2\theta = \frac{1}{2}$

$\sin \theta = \pm \frac{\sqrt{2}}{2}$

$\tan 2\theta = \frac{\sqrt{2}}{\frac{\sqrt{2}}{2}} = 2$

سوال (4)  
 $\theta < 90^\circ$   
 $\theta = 45^\circ$

سوال ٥

$$\frac{r \tan^2 \theta (1 - \tan^2 \theta)}{(1 - \cot^2 \theta)^2} \cdot \tan \theta \Rightarrow \frac{r \left( \frac{\sqrt{3}}{3} \right) \left( \frac{3}{9} \right)}{\frac{36}{81}} = \frac{r \sqrt{3}}{9} \cdot \sqrt{3}$$

$$1 - \frac{3}{9} = \left( \frac{3}{9} \right)^2 \Rightarrow \frac{36}{81}$$

$$1 - \frac{3}{9} = \frac{6}{9}$$

$$\frac{60}{11} = \frac{\text{rad}}{\pi} \Rightarrow \text{Rad} = \frac{\pi}{3}$$

$$\frac{\sin}{\cos} \cdot \Delta \Rightarrow \sin = \Delta \cos$$

سوال ٦

$$\frac{3 \sin \theta - \cos \theta}{\sin \theta - 8 \cos \theta} = \frac{12 \cos \theta \cos \theta}{5 \cos \theta - 7 \cos \theta} = \frac{12 \cos \theta}{-2 \cos \theta}$$

$$\tan \theta = \Delta$$

$$\sin \alpha = \frac{6}{10}$$

$$\frac{\text{مقابل}}{\text{وتر}} = \frac{6}{10}$$



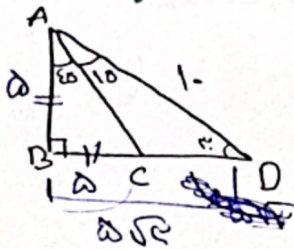
سوال ٧

$$1 + 7 + 7 + 1 + 6 = 32$$

$$6^2 + 8^2 = 10^2$$

$$\sin \theta = \frac{6}{10}$$

$$\theta = 36.87^\circ$$

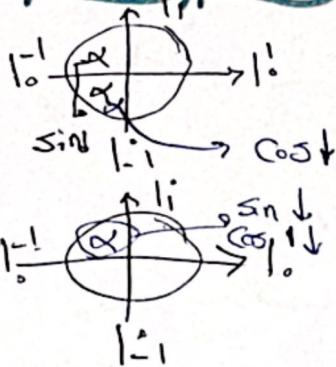


سوال ٨

$$\sin \theta = \frac{AB}{10} \Rightarrow \frac{6}{10} = \frac{AB}{10} \Rightarrow AB = 6$$

$$\cos \theta = \frac{BD}{10} \Rightarrow \frac{8}{10} = \frac{BD}{10} \Rightarrow BD = 8$$

$$DC = 8 - 6 = 2 \Rightarrow 2(1 - \sqrt{2})$$

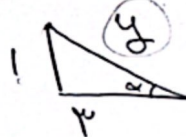


الف (ناقص)

ب (ناقص)

سوال ١٠

$$\tan \theta = \frac{1}{c} \Rightarrow \frac{\sin}{\cos} = \frac{1}{c}$$



$$\frac{\text{مقابل}}{\text{مجاور}} = \frac{1}{c}$$

$$y^2 + 1 + c^2 = y^2 \cdot 1$$

$$y = \sqrt{1+c^2}$$

$$\sin \theta = \frac{1}{\sqrt{1+c^2}}$$