

$$\frac{D}{1A_0} = \frac{Rad}{\pi}$$

الف) $2V = (x) rad$ $\frac{2V}{1A_0} = \frac{rad}{\pi} \rightarrow rad = \frac{2V \times \pi}{1A_0}$ $\rightarrow x = \frac{3 \pi}{40}$

$\rightarrow 125 = (x) rad$ $\checkmark$

$$\frac{125}{1A_0} = \frac{(x)}{\pi} \rightarrow (x) = \frac{125 \pi}{1A_0} \rightarrow x = \frac{25 \pi}{4}$$

ج) $\frac{5 \pi}{12} rad = (x)^\circ \rightarrow \frac{x}{1A_0} = \frac{5 \pi}{12} \rightarrow \frac{x}{1A_0} = \frac{5}{12} \rightarrow x = 50^\circ$

د) $\frac{f \pi}{9} rad = (x)^\circ \rightarrow \frac{x}{1A_0} = \frac{f \pi}{9} \rightarrow \frac{x}{1A_0} = \frac{f}{9} \rightarrow x = 10^\circ$

هـ) $\frac{a \pi}{1} rad = (x)^\circ \rightarrow \frac{a \pi}{1} = \frac{x}{1A_0} \rightarrow x = \frac{1A_0 a}{1} \rightarrow x = 225a$

و) $\frac{125a}{9} = (x)^\circ \rightarrow \frac{x}{1A_0} = \frac{125a}{9} \rightarrow \frac{x}{1A_0} = \frac{125a}{9 \times 1A_0}$

$$x = \frac{1A_0 \times 125a}{9 \times 1A_0} = 125a$$

$10a^\circ$

$$10a^\circ + 125a^\circ + 225a^\circ = 1A_0$$

$$\rightarrow 360a = 1A_0 \rightarrow a = 4^\circ$$

الف) $\cos 90^\circ \cos 30^\circ - \sin 90^\circ \sin 30^\circ = \tan 45^\circ + 2 \cot 45^\circ$

$$\left(\frac{1}{2} \times \frac{\sqrt{3}}{2} \right) - \left(\frac{\sqrt{3}}{2} \times \frac{1}{2} \right) = 1 + 2(1)$$

$$\frac{\sqrt{3}}{4} - \frac{\sqrt{3}}{4} = 1 + 2 = 3$$

$$1 \quad \frac{\tan^r 30^\circ + \tan^r 45^\circ + \tan^r 60^\circ}{\cot^r 30^\circ - \cot^r 60^\circ}$$

$$2 \quad \rightarrow \frac{\left(\frac{\sqrt{3}}{3}\right)^r + 1 + (\sqrt{3})^r}{\sqrt{3} - \frac{\sqrt{3}}{3}} = \frac{\frac{1}{3} + 1 + 3}{\frac{2\sqrt{3}}{3}} = \frac{\frac{13}{3}}{\frac{2\sqrt{3}}{3}} = \frac{13}{2\sqrt{3}}$$

$$5 \quad -\sin^r 30^\circ \cos^r 60^\circ + \cos^r 30^\circ \sin^r 60^\circ = \sin^r \theta \quad \text{? } \tan \theta \text{ (K)}$$

$$6 \quad \rightarrow -\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = -\frac{1}{4} + \frac{3}{4} = \frac{2}{4} = \frac{1}{2} = \sin^r \theta$$

$$* \text{ similarly } \sin \theta = \frac{\sqrt{3}}{2} \rightarrow \theta = 60^\circ \rightarrow \tan \theta = \sqrt{3}$$

$$8 \quad \frac{r \tan^r 30^\circ (1 - \tan^r 30^\circ)}{(1 - \cot^r 60^\circ)^r} = \tan \theta \quad \text{(C)}$$

$$9 \quad \frac{r \times \left(\frac{\sqrt{3}}{3}\right) \times \left(1 - \frac{1}{3}\right)}{\left(1 - \frac{1}{3}\right)^r} = \frac{\frac{r\sqrt{3}}{3}}{\frac{2}{3}} = \frac{r\sqrt{3}}{2} \rightarrow \theta = 60^\circ$$

$$12 \quad \frac{r_0}{1\lambda_0} = \frac{r_1}{\lambda_1} \rightarrow r_1 = \frac{\lambda_1 r_0}{\lambda_0} \quad \text{(V) } \checkmark$$

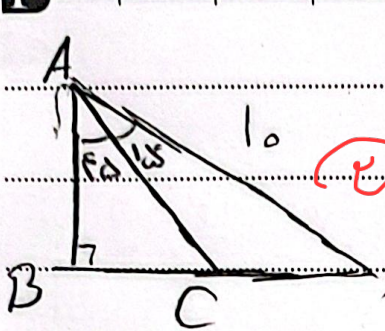
$$14 \quad \tan \theta = \omega \rightarrow \frac{\sin \theta}{\cos \theta} = \omega \rightarrow \sin \theta = \omega \cos \theta \quad \text{(9)}$$

$$15 \quad \frac{r \sin \theta - \cos \theta}{\sin \theta - r \cos \theta} \quad \frac{\sin \theta = \omega \cos \theta}{\omega \cos \theta - r \cos \theta} \quad \frac{r \omega \cos \theta - \cos \theta}{\omega \cos \theta - r \cos \theta} = \frac{r \omega \cos \theta}{\cos \theta}$$

$$16 \quad = \frac{r \omega}{1 - r} \quad \text{(V) } \checkmark$$

$$18 \quad \sin \alpha = \frac{r}{1} = \frac{AC}{AB} \rightarrow AB = 1 \quad \text{(V)}$$

$$19 \quad 1 + \sqrt{3} + \sqrt{3} + r + \frac{r}{\sqrt{3}} = \sqrt{3} \quad \text{(V)}$$



$$\hat{A} = 45^\circ \quad \sin 45^\circ = \frac{\sqrt{3}}{2} = \frac{BD}{10}$$

$$\rightarrow BD = 5\sqrt{3}$$

$$\cos 45^\circ = \frac{1}{2} = \frac{AB}{10} \rightarrow AB = 5$$

$$\hat{A}_1 = 45^\circ$$

$$\cot 45^\circ = 1 = \frac{AB}{BC} \rightarrow BC = 5$$

$$DC = BD - BC \rightarrow 5\sqrt{3} - 5 = 5(\sqrt{3} - 1)$$

الف (9) $\left\{ \begin{array}{l} \text{كهف Sin} \leftarrow \text{ناميه : } 2 \text{ و } 3 \\ \text{كهف Cos} \leftarrow \text{ناميه : } 1 \end{array} \right\}$

ب (10) $\left\{ \begin{array}{l} \text{كهف Sin} \leftarrow \text{ناميه : } 2 \text{ و } 3 \\ \text{كهف Sin} \leftarrow \text{ناميه : } 1 \end{array} \right\}$

$$\tan^2 x + 1 = \frac{1}{\cos^2 x} \quad \text{كهف Sin } x \tan = \frac{1}{3} \quad (10)$$

$$\frac{1}{9} + 1 = \frac{1}{\cos^2 x} \rightarrow \cos^2 x = 0.9 \quad \text{كهف Sin } x \cos x = -\frac{3}{\sqrt{10}}$$

$$\tan x = \frac{1}{3} = \frac{\sin x}{\cos x} \rightarrow \sin x = \frac{1}{3} \rightarrow \sin x = \frac{1}{3} = \frac{-\sqrt{10}}{10}$$

(P) ✓