

الف) $27^\circ = (\pi) \text{ Rad} \quad \frac{27^\circ}{180^\circ} = \frac{\pi}{6} \text{ Rad}$

ب) $12\alpha = (\pi) \text{ Rad} \quad \frac{12\alpha}{180^\circ} = \frac{\pi}{6} \Rightarrow \alpha = \frac{\pi}{24} \text{ Rad}$

ج) $\frac{\alpha\pi}{12} \text{ rad} = (\pi)^\circ \Rightarrow \frac{\alpha}{12} = \frac{180^\circ}{\pi} \Rightarrow \alpha = 24^\circ$

د) $\frac{4}{\pi} = \frac{\pi}{180^\circ} \Rightarrow \frac{\pi}{180^\circ} = \frac{4}{9} \Rightarrow \pi = 1^\circ$

$12\alpha\alpha = 12,5\alpha^\circ$

$\frac{1}{100}$

$\frac{\alpha\pi}{1} \text{ Rad} = 22,5\alpha^\circ$

$10\alpha + 22,5\alpha + 12,5\alpha = 180^\circ$

$55\alpha = 180^\circ \Rightarrow \alpha = 3^\circ$

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

$\cos 45^\circ \times \cos 30^\circ - \sin 45^\circ \sin 30^\circ = \tan 45^\circ \times \tan 30^\circ$

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

$\frac{\tan 45^\circ + \tan 30^\circ + \tan 45^\circ}{\cot 45^\circ - \cot 30^\circ}$

$-\sin 30^\circ \cos 45^\circ + \cos 30^\circ \sin 45^\circ = \sin^2 \theta$

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

$\theta = 45^\circ \Rightarrow \tan 45^\circ = 1$

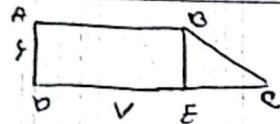
$\frac{2 \tan 45^\circ (1 - \tan 30^\circ)}{(1 - \cot 45^\circ)^2} = \frac{2 \times \frac{\sqrt{3}}{2} (1 - \frac{1}{2})}{(1 - \frac{1}{2}) (1 - \frac{1}{2})} = \frac{2 \times \frac{\sqrt{3}}{2} \times \frac{1}{2}}{\frac{1}{2} \times \frac{1}{2}} = \sqrt{3}$

$\frac{70^\circ}{180^\circ} = \frac{\text{Rad}}{\pi} = 70^\circ = \frac{\pi}{9} \text{ rad}$

$\tan A = \sqrt{3} \Rightarrow A = 60^\circ$

$$\tan \theta = \Delta \quad \frac{\sin \theta}{\cos \theta} = \Delta \longrightarrow \sin \theta = \Delta \cos \theta$$

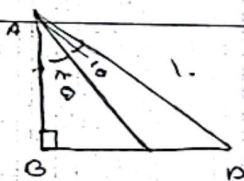
$$\frac{10 \sin \theta - \cos \theta}{\sin \theta - 10 \cos \theta} = \frac{10 \cos \theta - \cos \theta}{10 \cos \theta - 10 \cos \theta} = \frac{10 \cos \theta}{\cos \theta} = 10$$



$$\sin \alpha = \frac{BE}{BC} = \frac{4}{10} \rightarrow \frac{4}{BC} = \frac{4}{10} \rightarrow BC = 10.$$

$$\cos \alpha \frac{E_c}{B_c} = \frac{1}{10} \rightarrow \frac{E_c}{10} = \frac{1}{10} \rightarrow E_c = 1$$

$$\underline{1\text{st}} = V + 4 + V + 1 + 10 = 21$$



$$AB = BC = AC \quad (\cos(72^\circ)) = 10 \left(\frac{1}{\tau} \right) = a$$

$$D_C = BD - BC = 10(\sin 40^\circ) - 2 = 2\sqrt{r} - 2$$

الف انحراف θ $\leftarrow \sin \theta$ $\leftarrow$ درامی ۳، ۲ $\leftarrow$ دو انحراف $\leftarrow$ درامی ۴، ۳

{ $\sin$ ماہی ۲ اور ۳ $\leftarrow$ $\sin$ ماہی ۲
 $\cos$ ماہی ۲ اور ۳ $\leftarrow$ $\cos$ ماہی ۲

$$\tan \alpha = \frac{1}{r} \rightarrow \frac{\sin \alpha}{\cos \alpha} = \frac{1}{r} \rightarrow \cos \alpha = r \sin \alpha$$

$$\frac{1}{\cos^2 x} = 1 + \tan^2 x$$

$$\frac{1}{\cos^2 x} = 1 + \underbrace{\left(\frac{1}{r}\right)^2}_{\frac{1}{9}} \rightarrow \cos^2 x = \frac{9}{10} \rightarrow \sin^2 x + \cos^2 x = 1$$

$$\sin^2 x = \frac{1}{10} \quad \sin x = \frac{1}{\sqrt{10}}$$

$$\sin^2 \alpha = \frac{1}{10} \quad \sin^2 \alpha = \frac{1}{10} = \frac{1}{\sqrt{10}} = \frac{1}{\sqrt{10}}$$

چون انتهای کمان در ربع سوم است پس $\sin \theta$ تنها برابر $\frac{y}{r} = \frac{-1}{2}$ است