

1)  $2V^\circ = (n) \text{ Rad}$   $\frac{2V}{1A^\circ} = \frac{\text{Rad}}{\pi} \rightarrow = \frac{r\pi}{r_0} \text{ Rad}$   
 2)  $1A^\circ = (n) \text{ Rad}$   $\frac{1A^\circ}{1A^\circ} = \frac{\text{Rad}}{\pi} \rightarrow = \frac{r\pi}{r_0} \text{ Rad}$   
 3)  $\frac{\pi}{12} \text{ rad} = (n)^\circ$   $\frac{\pi}{12} = \frac{n}{180} \rightarrow n = 15^\circ$

$$\frac{1200}{9} = 133.33^\circ \quad \left. \begin{array}{l} \frac{1200}{9} = 133.33^\circ \\ \frac{9\pi}{1} \text{ Rad} = 157.08^\circ \end{array} \right\} 100 + 133.33 + 157.08 = 390.41^\circ$$

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

ب)  $\frac{\frac{1}{3} + 1 + 3}{\sqrt{3} - \frac{\sqrt{3}}{3}} = \frac{\frac{13}{3}}{\frac{2\sqrt{3}}{3}} = \frac{13}{2\sqrt{3}}$

$\cos 4^\circ \cos 3^\circ - \sin 4^\circ \sin 3^\circ - \tan 4^\circ + \cot 3^\circ$

$\frac{\tan 3^\circ + \tan 4^\circ + \tan 4^\circ}{\cot 3^\circ - \cot 4^\circ}$

$$\begin{aligned} -\sin 30^\circ \cos 40^\circ + \cos 30^\circ \sin 40^\circ &= \sin^r \theta \\ -\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} &= \sin^r \theta \quad \rightarrow \text{:oslo } \sin \theta \\ -\frac{1}{2} + \frac{3}{2} &= \sin^r \theta \rightarrow \sin^r \theta = \frac{2}{2} \quad \sin \theta = \frac{\sqrt{3}}{2} \\ \theta &= 60^\circ \rightarrow \tan 60^\circ = 1 \end{aligned}$$

$$\frac{r \tan^2 \theta (1 - \tan^2 \theta)}{(1 - \cot^2 \theta)^2} = \frac{\frac{r\sqrt{r}}{r} (1 - \frac{1}{r})}{(1 - \frac{1}{r})(1 - \frac{1}{r})} = \frac{\frac{r\sqrt{r}}{r}}{\frac{r}{r}} = \sqrt{r}$$

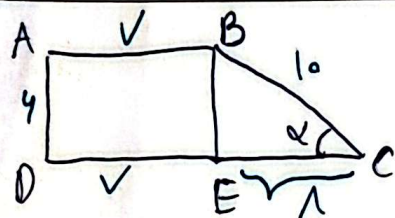
$$\frac{\theta}{1 \text{ rad}} = \frac{\text{Rad}}{\pi} \rightarrow \theta = \frac{\pi}{r} \text{ rad}$$

$$\tan A = \sqrt{r}$$

$$A = \theta$$

$$\tan \theta = 5 \rightarrow \frac{\sin \theta}{\cos \theta} = 5 \rightarrow \sin \theta = 5 \cos \theta$$

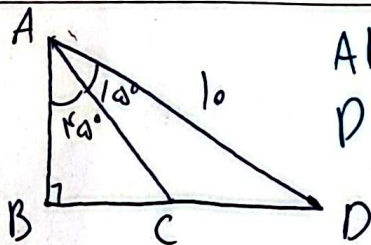
$$\frac{5 \sin \theta - \cos \theta}{\sin \theta - 5 \cos \theta} = \frac{15 \cos \theta - \cos \theta}{5 \cos \theta - 5 \cos \theta} = \frac{14 \cos \theta}{0} = \text{undefined}$$



$$\sin \alpha = \frac{BE}{BC} = \frac{4}{5} \rightarrow \frac{4}{5} = \frac{4}{5} \rightarrow BC = 1$$

$$\cos \alpha = \frac{EC}{BC} = \frac{1}{5} \rightarrow \frac{1}{5} = \frac{1}{5} \rightarrow EC = 1$$

$$\text{جواب: } 4 + 4 + 1 + 1 = 10$$



$$AB = BC = AC (\cos(45^\circ)) = 1 \left( \frac{1}{\sqrt{2}} \right) = \frac{1}{\sqrt{2}}$$

$$DC = BD - BC = 1 (\sin 45^\circ) = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

الف) افزایش  $\theta \leftarrow \sin$  کاهش  $\leftarrow$  در ناصیه ۲ و ۳  
 $\leftarrow \cos$  افزایش  $\leftarrow$  در ناصیه ۱ و ۴

ب) افزایش  $\theta \leftarrow \sin$  کاهش  $\leftarrow$  در ناصیه ۲ و ۳  
 $\leftarrow \cos$  کاهش  $\leftarrow$  در ناصیه ۱ و ۴

$$\tan \alpha = \frac{1}{3} \rightarrow \frac{\sin \alpha}{\cos \alpha} = \frac{1}{3} \rightarrow \cos \alpha = 3 \sin \alpha$$

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

$$\frac{1}{\cos^2 \alpha} = 1 + \left( \frac{1}{3} \right)^2 \rightarrow \cos^2 \alpha = \frac{9}{10} \rightarrow \sin^2 \alpha + \cos^2 \alpha = 1$$

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

$$\sin \alpha = \pm \sqrt{\frac{1}{10}} = \pm \frac{1}{\sqrt{10}} = \pm \frac{\sqrt{10}}{10}$$

چون اینها در ربع سوم است پس  $\sin \alpha$  تنها برابر با  $-\frac{\sqrt{10}}{10}$  است.