

الف) $27^\circ = (x) \text{ rad} \rightarrow \frac{27}{180} = \frac{x}{\pi} \Rightarrow x = \frac{27\pi}{180} = \frac{3\pi}{20}$

ب) $125^\circ = (x) \text{ rad} \rightarrow \frac{125}{180} = \frac{x}{\pi} \Rightarrow x = \frac{125\pi}{180} = \frac{25\pi}{36}$

ج) $\frac{5\pi}{12} \text{ rad} = (x)^\circ \rightarrow \frac{x}{180} = \frac{5\pi}{12\pi} \Rightarrow x = \frac{180 \times 5}{12} = 75^\circ$

د) $\frac{4\pi}{9} \text{ rad} = (x)^\circ \rightarrow \frac{x}{180} = \frac{4\pi}{9\pi} \Rightarrow x = \frac{4 \times 180}{9} = 80^\circ$

$\frac{125a}{9 \times 200} = \frac{D_1}{180} \rightarrow D_1 = \frac{125a \times 180}{9 \times 200} = 12.5a^\circ$

$\frac{a\pi}{18\pi} = \frac{D_2}{180} \rightarrow D_2 = \frac{180a}{18} = 10a^\circ$

$10a + 12.5a + 12.5a = 45a = 180 \rightarrow a = 4^\circ$

الف) $\cos 45^\circ \cos 30^\circ - \sin 45^\circ \sin 30^\circ - \tan 60^\circ + \cot 60^\circ =$

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

ب) $\frac{\tan^2 30^\circ + \tan^2 60^\circ + \tan^2 45^\circ}{\cot 30^\circ - \cot 45^\circ} = \frac{\left(\frac{1}{\sqrt{3}}\right)^2 + (1)^2 + (\sqrt{3})^2}{\sqrt{3} - \frac{\sqrt{3}}{3}} = \frac{\frac{1}{3} + 1 + 3}{\frac{2\sqrt{3}}{3}} = \frac{\frac{13}{3}}{\frac{2\sqrt{3}}{3}} = \frac{13}{2\sqrt{3}} = \frac{13\sqrt{3}}{6}$

$-\sin 30^\circ - \cos 45^\circ + \cos 30^\circ \sin 45^\circ = \sin \theta \rightarrow -\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{2}}{2} = -\frac{1}{4} + \frac{\sqrt{6}}{4} = \frac{1}{4} = \sin \theta$

$\sin \theta = \frac{\sqrt{6}}{4}$
چونکہ $[\theta < 90^\circ]$ غلط

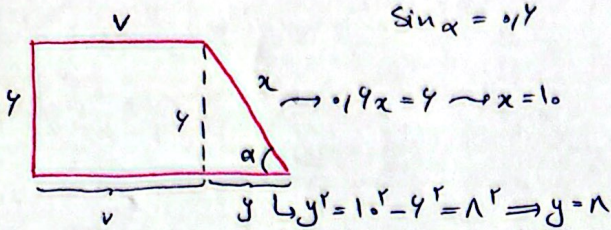
$\cos \theta = 1 - \frac{1}{2} = \frac{1}{2} \rightarrow \cos \theta = \frac{\sqrt{3}}{2} \Rightarrow \tan \theta = 1$
غیر غلط $[\theta < 90^\circ]$

$\frac{\tan^2 30^\circ (1 - \tan^2 45^\circ)}{(1 - \cot^2 45^\circ)^2} = \tan \theta \rightarrow \frac{\frac{1}{3} (1 - (\sqrt{3})^2)}{(1 - (\frac{1}{\sqrt{3}})^2)^2} = \frac{\frac{1}{3} (1 - 3)}{(1 - \frac{1}{3})^2} = \frac{\frac{1}{3} (-2)}{(\frac{2}{3})^2} = \frac{-\frac{2}{3}}{\frac{4}{9}} = -\frac{3}{2} = \tan \theta$

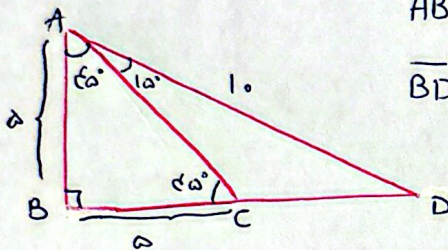
$\frac{45}{180} = \frac{\text{Rad}}{\pi} \rightarrow \frac{\pi}{4}$

$$\tan \theta = \Delta \rightarrow 1 + \tan^2 \theta = \frac{1}{\cos^2 \theta} \rightarrow r_y = \frac{1}{\cos \theta} \rightarrow \cos \theta = \pm \frac{1}{r_y}$$

$$\frac{r \sin \theta - \cos \theta}{\sin \theta - r \cos \theta} = \frac{\frac{(\pm 10) - (\pm 1)}{\sqrt{r_y}}}{\frac{(\pm \Delta) - (\pm \epsilon)}{\sqrt{r_y}}} = \frac{(\pm 10) - (\pm 1)}{(\pm \Delta) - (\pm \epsilon)} \rightarrow \begin{aligned} &\frac{10-1}{\Delta-\epsilon} = 1\epsilon \\ &\frac{-10+1}{-\Delta+\epsilon} = 1\epsilon \end{aligned} \Rightarrow \frac{r \sin \theta - \cos \theta}{\sin \theta - r \cos \theta} = 1\epsilon$$



$$P = V + Y + V + A + I = 18$$

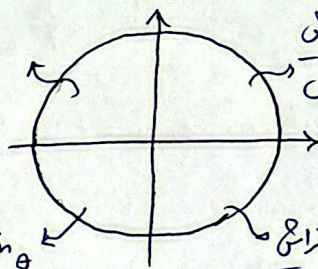


$$\overline{AB} = \sin 60^\circ \times 10 = 5 \rightarrow \overline{AB} = \overline{BC} = 5$$

$$\overline{BD} = \sin 30^\circ \times 10 = 5 \rightarrow \overline{CD} = \overline{BD} - \overline{BC} = 5 - 5 = 0$$

و 10 10 10

cos theta كاهن
sin theta كاهن



sin theta اقراش
cos theta كاهن

الف اربع سويم

ب اربع رسم

$$\tan x = \frac{1}{3} \rightarrow 1 + \tan^2 x = \frac{1}{\cos^2 x} \rightarrow \cos^2 x = \frac{9}{10} \rightarrow \cos x = \pm \frac{3}{\sqrt{10}}$$

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