

۲۰ عالی نوشتن!

بارها سماعی دهر پرده تکیه نماوی ۱۷

الف) $27^\circ z(x) \text{ rad}$ $\frac{27}{180} \cdot \frac{\pi}{1} \Rightarrow \frac{\pi}{20} \Rightarrow x = \frac{3\pi}{20}$ ✓

(۲) (۱)

ب) $125^\circ z(x) \text{ rad}$ $\frac{125}{180} \cdot \frac{\pi}{1} \Rightarrow x = \frac{25\pi}{36}$ ✓

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

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

$10a + \frac{125a}{9} + \frac{a\pi}{\lambda} = 180^\circ$

$10a + 125a + 225a \cdot 180 = 25a \Rightarrow a = 2$ ✓

(۲) (۲)

$\frac{125a}{9} = \frac{D}{180} \Rightarrow D = 125a$ $\frac{a\pi}{\lambda} = \frac{D}{2\pi} \Rightarrow D = 225a$ ✓

۴) $\frac{\cos 40^\circ \cos 20^\circ - \sin 40^\circ \sin 20^\circ}{\frac{1}{\sqrt{3}} \times \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{3}}} = \frac{-\tan 60^\circ + \cot 60^\circ}{-1} = 1$ ✓

(۲) (۳)

۵) $\frac{\tan^2 20^\circ + \tan^2 40^\circ + \tan^2 60^\circ}{\cot^2 20^\circ - \cot^2 40^\circ} = \frac{\frac{1}{3} + 1 + 3}{\frac{1}{3} - \frac{1}{3}} = \frac{13}{\frac{2}{3}} = \frac{13\sqrt{3}}{2}$ ✓

$\frac{-\sin 20^\circ \cos 40^\circ + \cos 20^\circ \sin 40^\circ}{-\frac{1}{\sqrt{3}} \times \frac{1}{2} - \frac{1}{2} \times \frac{1}{\sqrt{3}}} = \sin \theta \Rightarrow \frac{r}{f} = \sin \theta$ $\tan \theta = ?$

(۲) (۴)

$1 + \cot^2 \theta = \frac{1}{\sin^2 \theta} \Rightarrow 1 + \cot^2 \theta = 2 \Rightarrow \cot^2 \theta = 1 \Rightarrow \tan \theta = \pm 1$ ✓

$\frac{r \tan 20^\circ (1 - \tan^2 20^\circ)}{(1 - \cot^2 40^\circ)^2} = \tan \theta$
 $\frac{\frac{r}{\sqrt{3}} (1 - \frac{1}{3})}{(1 - \frac{1}{3})^2} \Rightarrow \frac{\frac{r}{\sqrt{3}} \cdot \frac{2}{3}}{(\frac{2}{3})^2} = \frac{r}{\sqrt{3}}$

$\theta = ? \text{ Rad}$

$\tan \theta = \frac{r}{\sqrt{3}} \begin{cases} 40^\circ \checkmark \Rightarrow \frac{40}{180} \cdot \frac{\pi}{1} \Rightarrow x = \frac{\pi}{9} \checkmark \\ 20^\circ \times \end{cases}$

(۲) (۵)

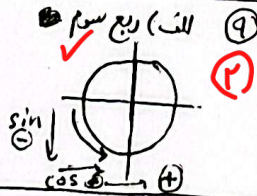
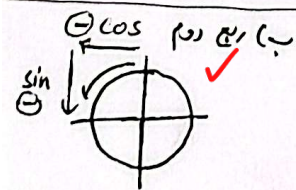
$\frac{\sin \theta - \cos \theta}{\sin \theta + \cos \theta} = \frac{\frac{10}{\sqrt{4}} - \frac{1}{\sqrt{4}}}{\frac{10}{\sqrt{4}} + \frac{1}{\sqrt{4}}} = \frac{1}{1} \Rightarrow \frac{-10}{\sqrt{4}} - \frac{-1}{\sqrt{4}} = \frac{-1}{1} = 1$ ✓

(۲) $\tan \theta = 0$ (۶)
 $\sin \theta = \frac{1}{\sqrt{4}}$
 $\cos \theta = \frac{1}{\sqrt{4}}$

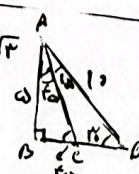
$25 = 9 + 16 + 16 + 16 + 16 = 64$ ✓

$1 = 4^2 + 2^2 \Rightarrow x = 4$

$9 = \frac{1}{2} \sin \alpha$ (۷)



$\sin 40^\circ = \frac{BD}{10} \Rightarrow BD = \frac{10 \sin 40^\circ}{1} = 10 \sin 40^\circ$
 $\sin 20^\circ = \frac{AB}{10} \Rightarrow AB = 10 \sin 20^\circ$
 $CD = BD - BC = 10 \sin 40^\circ - 10 \sin 20^\circ$ ✓



$DC = 10 \sin 20^\circ$ (۸)

$\tan x = \frac{1}{3}$

$\sin x = ?$

$1 + \tan^2 x = \frac{1}{\cos^2 x} \Rightarrow 1 + \frac{1}{9} = \frac{1}{\cos^2 x} \Rightarrow \cos^2 x = \frac{9}{10} \Rightarrow \sin^2 x = \frac{1}{10}$

(۲) (۹)

$\sin x \rightarrow \pm \frac{1}{\sqrt{10}} \Rightarrow \text{در ربع دوم و سوم}$
 $\sin x = -\frac{1}{\sqrt{10}}$ ✓