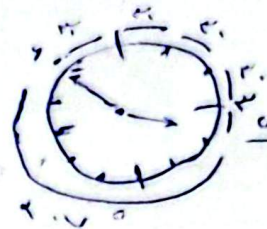


19, VZ

५. ५६

$$x^2 - x + 2v + 4 = 105 \quad \checkmark$$


①

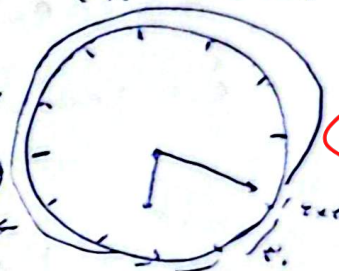
$$\rightarrow a = |\omega/\omega_m - \gamma_0 H| = |\omega/\omega_m (\omega \varepsilon) - \gamma_0 \omega| = \gamma_0 \omega$$

اور احوال

✓ سکتا ہے: ۱۸۰ ✓
۳۶۰ - ۱۸۰ = ۱۸۰

$$y: 1 \wedge'$$

الف



②

$$r \cdot 8r + 1r + 9 = 11 \quad \checkmark$$

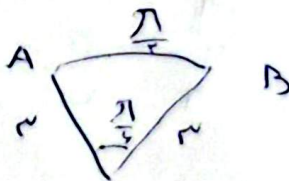
از این دو در ۲۷۹
 $a = 1 \text{ و } \omega / \omega_m = 0.411 - (0.411 - 0.12) = 0.11$ ✓

از اسنور ۲۷۹ در ۵۰

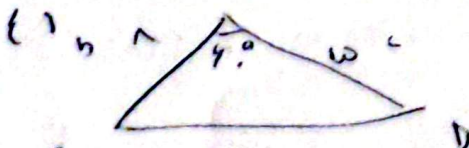
$$\omega = \frac{a}{r} R' = \frac{\pi}{12} \times 37 = \frac{37\pi}{4}$$

②

$\therefore |AB| = AR = \frac{\pi}{r} \times r$



$$A \Rightarrow \underline{b_{\text{max}}} = \frac{1}{r} + r + r - 1 + \frac{1}{r} \checkmark$$

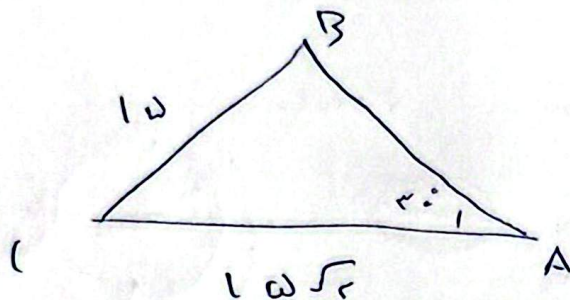


$$D \quad \text{مثال ١} : \quad \psi_A = \frac{1}{r} ab \sin \hat{A} = \frac{1}{r} \times 8 \times 10 \times \sin 45^\circ = 1.131 \checkmark$$

1) $a = \sqrt{b^2 + c^2 - 2bc \cos A} = a \sqrt{1^2 + 1^2 - 2 \cdot 1 \cdot 1 \cdot \frac{1}{2}} = \sqrt{1+1-1} = 1$ ✓

5. $\neg (A \wedge B) \equiv \neg A \vee \neg B$ ✓

ω)



$$\hat{B} + \hat{C} = 180^\circ$$

$$\hat{A} = 180^\circ - \hat{B} - \hat{C} = 180^\circ - 100^\circ = 80^\circ$$

(1, VA)

$$\frac{\sin \hat{B}}{b} = \frac{\sin \hat{A}}{a} = \frac{\sin \hat{B}}{1\omega} = \frac{\sin \hat{B}}{1\omega\sqrt{r}} \Rightarrow \frac{\sin \hat{B}}{1\omega} = \frac{\sin \hat{B}}{1\omega\sqrt{r}}$$

$$\hat{B} = 80^\circ \Rightarrow \frac{80^\circ}{180^\circ} = \frac{R}{\pi} \Rightarrow R = \frac{\pi}{2} \checkmark$$

$$\hat{C} = 100^\circ \Rightarrow \frac{100^\circ}{180^\circ} = \frac{R}{\pi} \Rightarrow R = \frac{100^\circ \pi}{180^\circ} \checkmark$$

γ)

$$\frac{\tan(\pi - \alpha) + r \tan(\pi + \alpha)}{\tan(\pi - \alpha) - \tan(\pi + \alpha)} = \frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha}$$

$$\tan(\pi - \alpha) = \tan(\pi + \alpha)$$

(r)

$$= \frac{r \tan \alpha}{-\tan \alpha} = -1 \checkmark$$

✓)

$$\tan \frac{\pi}{12} = \alpha$$

$$1.4 \frac{\pi}{12} = \frac{1}{\alpha}$$

$$\frac{\pi}{12} = \frac{D}{180^\circ} \Rightarrow D = 10^\circ$$

$$\Rightarrow \frac{r \tan 10^\circ + \tan 10^\circ}{r \tan 10^\circ - \tan 10^\circ}$$

$$r \tan 10^\circ - \tan 10^\circ \quad (r)$$

$$= \frac{r \tan(\frac{\pi}{12} - 10^\circ) + \tan(\frac{\pi}{12} + 10^\circ)}{r \tan(\pi - 10^\circ) - \tan(\frac{\pi}{12} - 10^\circ)}$$

$$r \tan(\pi - 10^\circ) - \tan(\frac{\pi}{12} - 10^\circ)$$

$$= \frac{r(1 + 10^\circ) + (-1 + 10^\circ)}{r \tan 10^\circ - (-1 + 10^\circ)} = \frac{\frac{1}{\alpha} - 1}{-r\alpha - 1} = \frac{\frac{1}{\alpha}}{-r\alpha - 1} = \frac{1}{-r\alpha - 1} \checkmark$$

$$1) = \frac{\sin x + c.sx}{\sin x - c.sx} + \frac{\sin x - c.sx}{\sin x + c.sx} = r$$

(2)

حرف مشترک
⇒

$$\frac{(\sin x + c.sx)^2 + (\sin x - c.sx)^2}{(\sin x - c.sx)(\sin x + c.sx)} = \frac{\sin^2 x + c.sx + \cancel{\sin x c.sx} + \sin^2 x + c.sx}{\sin^2 x - c.sx}$$

$$\frac{2\sin^2 x + 2c.sx}{c.sx} = \frac{r}{\sin^2 x - c.sx}$$

$$\Rightarrow 2\sin^2 x - 2c.sx = r$$

$$\sin^2 x - c.sx = \frac{r}{2}$$

$$\sin^2 x = c.sx + \frac{r}{2}$$

$$\cancel{\sin^2 x} - \cancel{\sin^2 x} = \cancel{c.sx} - \cancel{c.sx}$$

$$\Rightarrow \sin^2 x + c.sx = 1$$

$$c.sx + c.sx + \frac{r}{2} = 1$$

$$\Rightarrow 2c.sx = \frac{1}{2}$$

$$c.sx = \frac{1}{4} \Rightarrow \sin x = \frac{3}{4}$$

$$\Rightarrow \tan x = \frac{\sin x}{c.sx} = \frac{\frac{3}{4}}{\frac{1}{4}} = \frac{3}{1}$$

= 3 ✓

$$9) \frac{\sin^2 x - 2c.sx + 1}{\sin^2 x + 2c.sx - 1} = 2$$

(2)

$$1 = \sin^2 x + c.sx \Rightarrow \frac{\sin^2 x - 2c.sx + \sin^2 x + c.sx}{\sin^2 x + 2c.sx - \sin^2 x - c.sx} = 2$$

$$\sin^2 x + c.sx = 1$$

$$2c.sx = 1$$

$$\cancel{\sin^2 x} - \cancel{\sin^2 x} = \cancel{c.sx} - \cancel{c.sx}$$

$$\sin^2 x = \frac{3}{4} \Rightarrow \tan x = \frac{\frac{3}{4}}{\frac{1}{4}} = \frac{3}{1} \checkmark$$

۱۵۱

(۲)

$$\cos(2\alpha) = \frac{\sqrt{2+\sqrt{2}}}{2}$$

$$\begin{aligned} \cos^2 \alpha &= \frac{1 + \cos(2\alpha)}{2} \xrightarrow{\text{برای ساده کردن}} \frac{1 + \frac{\sqrt{2}}{2}}{2} = \frac{2 + \sqrt{2}}{4} = \frac{2 + \sqrt{2}}{4} \cdot \frac{2 + \sqrt{2}}{2 + \sqrt{2}} \\ &= \cos^2(2\alpha) \Rightarrow \cos(2\alpha) = \frac{\sqrt{2+\sqrt{2}}}{2} \quad \checkmark \end{aligned}$$

$$\sin(2\alpha) = \frac{\sqrt{2+\sqrt{2}}}{2}$$

$$\sin^2 \alpha = \frac{1 - \cos(2\alpha)}{2} \xrightarrow{\text{برای ساده کردن}} \frac{1 - \frac{\sqrt{2}}{2}}{2} = \frac{2 - \sqrt{2}}{4}$$

$$= \sin^2(2\alpha) \Rightarrow$$

$$\sin(2\alpha) = \frac{\sqrt{2+\sqrt{2}}}{2} \quad \checkmark$$

$$\text{راه دوم: } \underbrace{\sin(2\alpha) = \cos(2\alpha)}_{\text{مساوی می باشد}} = \frac{\sqrt{2+\sqrt{2}}}{2}$$