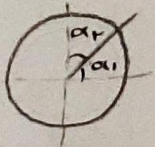


\* نقطه از پاره همان زاویه  $\alpha$  مشخص شده در صورت است.

۱۹,۷۵ آفرین

تکلیف ۱۴ - آواهای کیا :

$$1. \triangle OTB \rightarrow OB^2 = \underbrace{BT^2}_{\tan^2 \alpha_1 + 1} = \underbrace{OT^2}_{1} \Rightarrow OB^2 = \tan^2 \alpha_1 + 1 \Rightarrow OB = \sqrt{1 + \tan^2 \alpha_1}$$



$$\alpha_1 = \frac{\pi}{2} - \alpha_r \Rightarrow \tan \alpha_1 = \cot \alpha_r \Rightarrow OB = \sqrt{1 + \cot^2 \alpha_r} \xrightarrow{1 + \cot^2 u = \frac{1}{\sin^2 u}} OB = \sqrt{\frac{1}{\sin^2 \alpha_r}}$$

$$\Rightarrow OB = \left| \frac{1}{\sin \alpha_r} \right| \xrightarrow[\sin \alpha > 0]{\text{فاصله اد}} OB = \frac{1}{\sin \alpha_r}$$

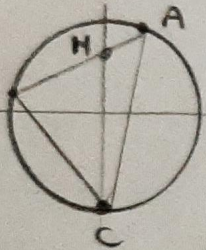
$$AB = OB - OA \Rightarrow \frac{1}{\sin \alpha_r} - 1 \Rightarrow AB = \frac{1 - \sin \alpha_r}{\sin \alpha_r}$$

۲. قضیه سینوس :  $\frac{PC}{\sin \alpha} = \frac{AC}{\sin \alpha} \Rightarrow \frac{r}{\frac{1}{r}} = \frac{AC}{\sin \alpha} = r$

$$\frac{BD}{\sin \alpha} = \frac{AB}{\underbrace{\sin(\pi - \alpha)}_{\sin \alpha}} \Rightarrow \frac{r}{\frac{1}{r}} = \frac{AB}{\sin \alpha}$$

$$\frac{AB}{AC} = \frac{\frac{AB}{\sin \alpha}}{\frac{AC}{\sin \alpha}} = \frac{\frac{r}{\frac{1}{r}}}{r} = \sqrt{r}$$

3.



$$A = \left| \begin{array}{c} \frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} \end{array} \right|$$

$$B = \left| \begin{array}{c} -\frac{\sqrt{3}}{2} \\ \frac{1}{2} \end{array} \right|$$

$$C = \left| \begin{array}{c} 1 \\ 0 \end{array} \right|$$

$$AC \xrightarrow{\text{فيثاغورس}} \left(\frac{1}{\sqrt{2}}\right)^2 + \left(1 + \frac{\sqrt{3}}{2}\right)^2 \Rightarrow AC = \sqrt{2 + \sqrt{3}}$$

$$BC \xrightarrow{\text{فيثاغورس}} \left(\frac{1}{\sqrt{2}} + 1\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 \Rightarrow BC = \sqrt{3}$$

$$AB \xrightarrow{\text{فيثاغورس}} \left(\frac{\sqrt{3}}{2} + \frac{1}{\sqrt{2}}\right)^2 + \left(\frac{\sqrt{3}}{2} - \frac{1}{\sqrt{2}}\right)^2 \Rightarrow AB = \sqrt{2}$$

$$\text{محيط: } \sqrt{3} + \sqrt{2} + \sqrt{2 + \sqrt{3}}$$

$$\hat{C} = \frac{30 + 60}{2} = 45^\circ \text{ زاویه محاطی}$$

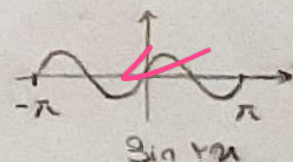
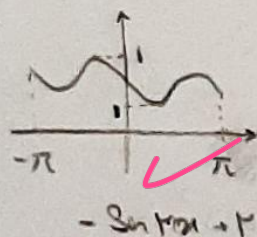
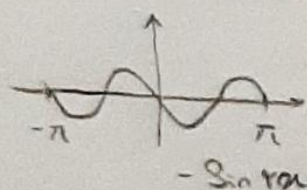
$$S = AC \times BC \times \sin 45^\circ \times \frac{1}{2} = \frac{1}{2} \sqrt{2 + \sqrt{3}} \times \sqrt{3} \times \frac{\sqrt{2}}{2} = \frac{\sqrt{12 + 4\sqrt{3}}}{4}$$

$$\frac{\sqrt{(3 + \sqrt{3})^2}}{4} = \frac{3 + \sqrt{3}}{4}$$

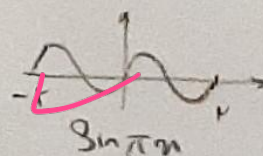
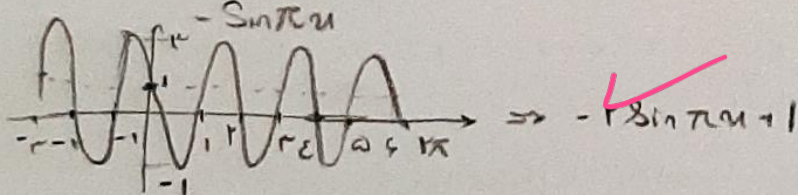
$$4. \text{SABC} = AB \times AC \times \frac{1}{r} = 2 \sin \alpha \Rightarrow \log \frac{1}{r} = \log \frac{1}{r} = \frac{1}{r} = \frac{1}{r}, \quad r \log \frac{1}{r} = r \log \frac{1}{r} = \frac{1}{r} \quad \log \frac{1}{r} = \frac{1}{r} \\ r \times r = 1 \times \frac{1}{r} = r$$

$$5. u = \cos \alpha \rightarrow \underbrace{r \cos^2 \alpha - \cos^2 \alpha}_{\cos^2 \alpha (r \cos^2 \alpha - 1)} - \underbrace{\sin^2 \alpha (r \sin^2 \alpha - 1)}_{-\cos^2 \alpha} = 1 \rightarrow \cos^2 \alpha (\underbrace{r \cos^2 \alpha + \sin^2 \alpha}_1) = 1 \\ \Rightarrow \cos^2 \alpha = 1 \quad \sin^2 \alpha = \sqrt{1 - \cos^2 \alpha} = \sqrt{1 - 1} = 0$$

$$6. \text{a)} \quad \underbrace{-r \sin u \cos u + r}_{-\sin r u} = -\sin r u + r \quad T = \frac{r\pi}{|b|} = \frac{r\pi}{|r|} = \pi$$



$$6. \text{b)} \quad \underbrace{r \cos(\pi u + \frac{\pi}{r}) + 1}_{-r \sin \pi u} = -r \sin \pi u + 1 \quad T = \frac{r\pi}{|b|} = \frac{r\pi}{|r|} = \pi$$



$$7. \quad \underbrace{\cot u}_{\cot u} \Rightarrow \underbrace{\cot u}_{\cot u} \Rightarrow \underbrace{\cot u}_{\cot u} \quad R = [-1, +\infty)$$

$$8. \quad a + b \underbrace{\sin(cu) \cos(cu) \cos(cu)}_{\frac{1}{r} \sin(cu)} \Rightarrow a + \frac{b}{r} \sin(cu) \quad T = \frac{\pi}{r} = \frac{\pi}{1}, \quad \frac{r\pi}{1} = \frac{r\pi}{\omega}$$

$$T = \frac{r\pi}{|EC|} = \frac{r\pi}{\omega} \Rightarrow |FC| < \frac{r\pi}{\omega} \quad FC = \omega \quad c = \frac{\omega}{r}$$

$$R_{\text{p.u.}} = [0, F] \Rightarrow \frac{b}{r} = \left(\frac{F-r}{r}\right) = 1, \quad a = F - r = r \quad \frac{bc}{a}, \quad \frac{1(\frac{\omega}{r})}{r}, \quad \omega$$

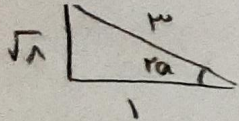
9.  $T: \pi = \frac{2\pi}{|b|} \Rightarrow |b| = 2$  چون  $a$  و  $b$  یقیناً حتماً است پس حالت  $b$  تأییدی نداره.

$$\left. \begin{array}{l} C + |a| = 2 \\ C - |a| = -4 \end{array} \right\} \begin{array}{l} 2C = -2 \\ C = -1 \end{array}$$

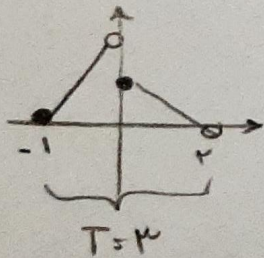
$$\Rightarrow -3 \cos 2a = 1 \Rightarrow -3 \cos 2a - 1 = 0$$

$|a| = 3$  ← با توجه به نمودار  $a < 0$   
 $a = -3$

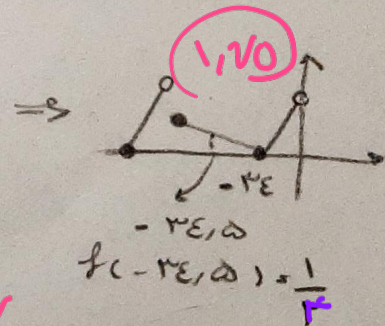
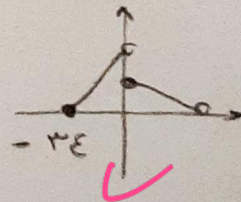
$$\cos 2a = \frac{1}{3} \Rightarrow |\tan 2a| = \sqrt{8}$$



10.



چون دوره تناوب 2 است اگر به اندازه 3/4 قایم به سمت چپ ببریم نمودار به شکل لایه درست



$$f(-r, \omega) = f(-r+1, \omega) = f((r-1)+1, \omega) = f(r, \omega)$$

10

$$f(n) = \begin{cases} -\frac{1}{r}n + 1 & ; -1 \leq n \leq r \\ rn + r & ; -1 \leq n < . \end{cases} \rightarrow f(r, \omega) = -\frac{1}{r}\left(\frac{r}{r}\right) + 1 = \frac{1}{r}$$