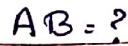


المسائل الخمسة



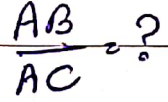
$$\tan i = \tan\left(\frac{\pi}{2} - \alpha\right) = \cot \alpha = \frac{BT}{AT}$$

$$y = \tan x$$

$$OB^P = BT^P + OT^P$$

$$OB^r = \cot^r d + 1 = \frac{1}{\sin^r d} \Rightarrow OB = \frac{1}{\sin d}$$

$$OB = \cancel{OA} + AB \Rightarrow AB = \frac{1}{\sin \alpha} - 1 = \frac{1 - \sin \alpha}{\sin \alpha}$$



قصص سنو وایٹ

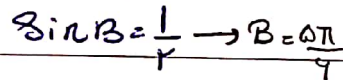
$$\text{م ABC} : \frac{AB}{\sin \hat{C}} = \frac{AC}{\sin \hat{B}} \Rightarrow \frac{AB}{AC} = \frac{\sin \hat{C}}{\sin \hat{B}}$$

$$\triangle ABD: \frac{4}{\sqrt{r}} = \frac{AD}{\sin B} \Rightarrow \frac{AD}{\sin B} = 4\sqrt{r}$$

$$C_{ADC} \approx \frac{r}{\frac{1}{\text{Sinc}}} = \frac{AD}{\text{Sinc}} \Rightarrow \frac{AD}{\text{Sinc}} \quad (4)$$

$$\frac{\sin \hat{C}}{\sin \hat{B}} = \frac{4\sqrt{r}}{4} = \sqrt{r} \Rightarrow \frac{AB}{AC} = \frac{\sin \hat{C}}{\sin \hat{B}} = \sqrt{r}$$

$$\cos A = \frac{1}{r} \rightarrow A = \frac{\pi}{r}$$



$\rho = \rho_{ABC}$ (الب)

$$\angle ABC = \angle AOC + \angle BOC + \angle BOA$$

$$S_{AOC}^{\Delta} = \frac{1}{\gamma} \times 1 \times 1 \times \sin 12.0^{\circ} = \frac{1}{\gamma}$$

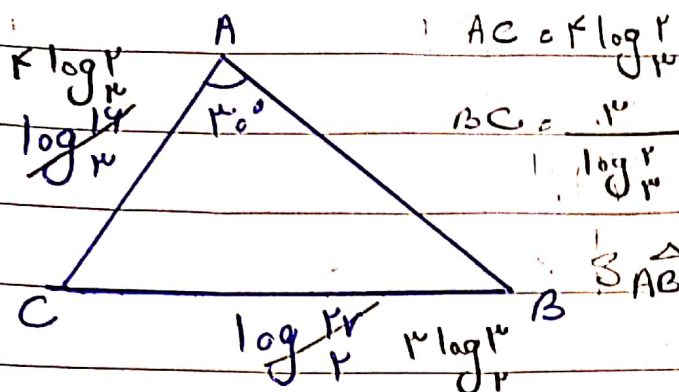
$$S_{BOC}^{\Delta} = \frac{1}{r} \times 1 \times 1 \times \sin 140^{\circ} = \underline{\underline{0.766}}$$

$$S_{BOA} = \frac{1}{r} \times 1 \times 1 \times \sin 90^\circ = \frac{1}{r}$$

$$\Rightarrow S_{ABC} = \frac{1 + \sqrt{p}}{K}$$

$$\text{مسئله ۱۰۰: } AC^2 = 1 + 1 - 2 \cos 150^\circ = 2 + 2 \times \frac{\sqrt{3}}{2} = 2 + \sqrt{3} \Rightarrow AC = \sqrt{2 + \sqrt{3}} \quad \text{PABC} \quad (-)$$

$$\begin{aligned} BC^2 &= 1 + 1 - 2 \cos 90^\circ = 2 \Rightarrow BC = \sqrt{2} \\ AC &= \sqrt{1^2 + 1^2} = \sqrt{2} \\ AB &= \sqrt{1^2 + 1^2} = \sqrt{2} \end{aligned} \Rightarrow \triangle ABC \text{ is equilateral}$$



$$AC = r \log \frac{r}{\mu}$$

$$BC = \frac{r}{\log r}$$

$$\Delta_{ABC} = \frac{1}{2} AB \cdot AC \cdot \sin \theta$$

$$r \log \frac{r}{\mu} \times \frac{r}{\log \frac{r}{\mu}} \times \frac{1}{2} \times \frac{1}{2} = \frac{r^2}{2}$$

$$r^2 \cos^2 \alpha - r^2 - \sin^2(\alpha) (r \sin^2 \alpha - 1) \rightarrow r = \cos \alpha$$

$$r^2 \cos^2 \alpha - r^2 + \sin^2(\alpha) \cos^2 \alpha = 1 \quad R = 1 \rightarrow \sin^2 \alpha = ?$$

$$r \cos^2 \alpha - \cos^2 \alpha + \sin^2(\alpha) \cos^2 \alpha = 1$$

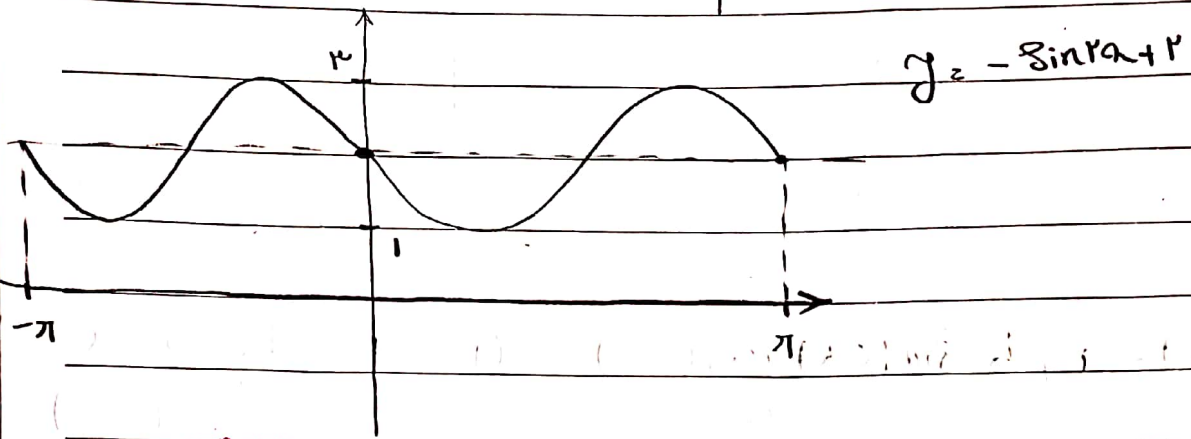
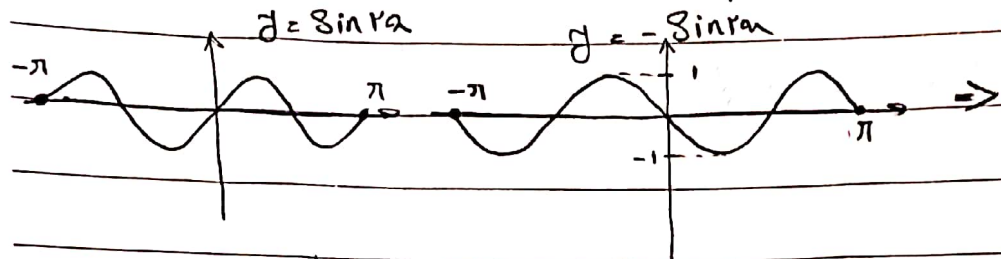
$$\cos^2 \alpha (r \cos^2 \alpha - 1) + \sin^2(\alpha) \cos^2 \alpha = 1$$

$$\cos^2 \alpha \cos^2 \alpha + \sin^2 \alpha \cos^2 \alpha = \cos^2 \alpha (\cos^2 \alpha + \sin^2 \alpha) = 1$$

$$\Rightarrow \cos^2 \alpha = 1 \Rightarrow \sin^2 \alpha + \underbrace{\cos^2 \alpha}_1 = 1 \Rightarrow \sin^2 \alpha = 0$$

الف) $g = r \sin \alpha \cos \alpha + r \quad [-\pi, \pi]$

$g = -\sin 2\alpha + r \quad T = \frac{2\pi}{r} = \pi$



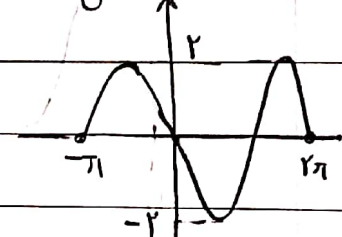
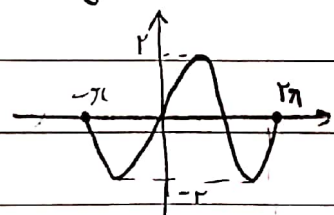
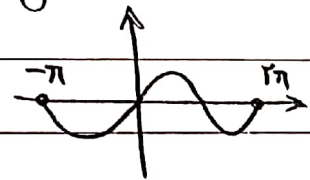
ب) $g = r \cos(\alpha + \frac{1}{r})\pi + 1 \quad [-\pi, \pi]$

$g = r \cos(\frac{\pi}{r} + \alpha) + 1 \rightarrow g = -r \sin \alpha + 1 \quad T = \frac{2\pi}{1} = 2\pi$

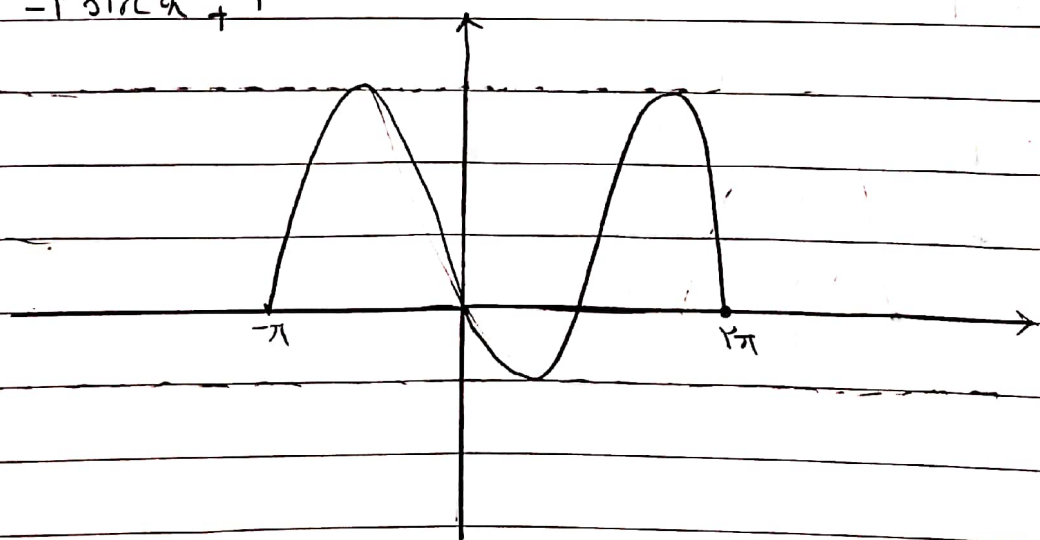
$g = \sin \alpha$

$g = r \sin \alpha$

$g = -r \sin \alpha$

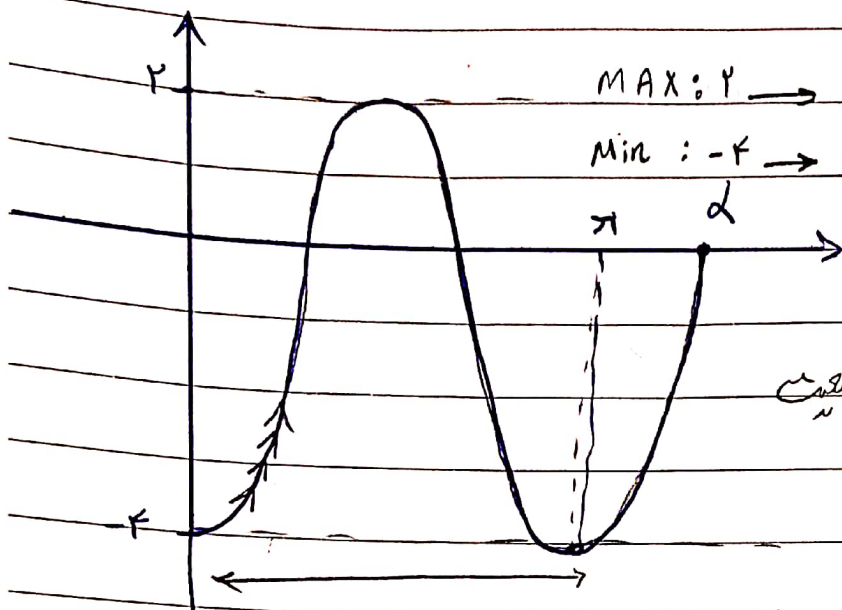


$g = -r \sin \alpha + 1$



$$f(x) = a \cos bx + c \rightarrow |\tan \alpha| = ?$$

-9



$$\begin{aligned} \text{MAX: } 2 &\rightarrow |a| + c = 2 \\ \text{Min: } -2 &\rightarrow -|a| + c = -2 \end{aligned} \quad \left| \begin{array}{l} 2c = -2 \\ c = -1 \end{array} \right|$$

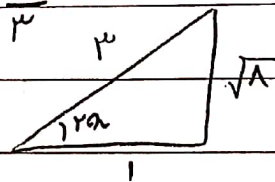
$$|a| = 3$$

cos از جنرالایزاسیون نیست
غیرایست نیست ab

$$T = \pi \rightarrow \frac{2\pi}{|b|} = \pi \Rightarrow |b| = 2 \rightarrow b = 2$$

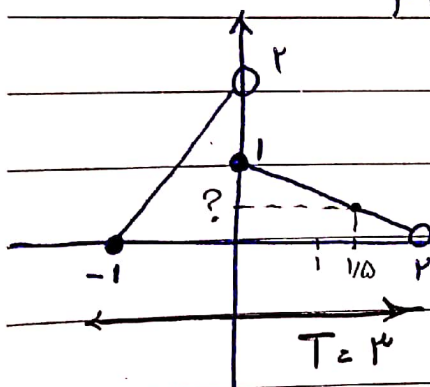
$$f(x) = -3 \cos 2x - 1 = 0 \Rightarrow \cos 2x = \frac{-1}{3} \quad a = -3 \leftarrow$$

$$|\tan \alpha| = \sqrt{1}$$



$$f(-3/2, \alpha) = ?$$

-1.



$$f(-3/2, \alpha) = f(-1/2, \alpha) = f(1/2, \alpha)$$

$$\begin{aligned} m = -\frac{1}{2} &\Rightarrow y = -\frac{1}{2}(x - 2) \\ y &= -\frac{1}{2}x + 1 \end{aligned}$$

$$f\left(\frac{1}{2}\right) = -\frac{1}{2} \times \frac{1}{2} + 1 = \frac{-1}{2} + 1 = \frac{1}{2}$$