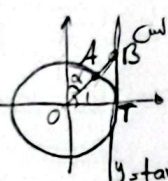


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$$\frac{\sin \hat{\alpha}_1}{\cos \hat{\alpha}_1} = \frac{OB}{OA} \Rightarrow OB = \tan \hat{\alpha}_1 = \frac{\sin \hat{\alpha}_1}{\cos \hat{\alpha}_1} = \frac{1}{\cos \hat{\alpha}_1} = OB$$

$$\hat{\alpha}_1 = \alpha_0 = \cos \hat{\alpha}_1 = \sin \alpha \Rightarrow OB = \frac{1}{\sin \alpha}$$

$$\rightarrow AB = OB - OA = \frac{1}{\sin \alpha} - 1 = \frac{1 - \sin \alpha}{\sin \alpha}$$

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$$\frac{AC}{\sin D} = \frac{AB}{\sin C} = \frac{AD}{\sin B}$$

$$\frac{AB}{\sin A} = \frac{AB}{\sin B} = \frac{AD}{\sin B}$$

$$AC = \frac{AB \sin A}{\sin B} = 4 \sin A$$

$$AB = \frac{4 \sin B}{\sin A} \Rightarrow \frac{12 \sin B}{\sqrt{2}}$$

$$\Rightarrow \frac{AB}{AC} = \frac{12 \sin B}{4 \sqrt{2} \sin A} \Rightarrow \sqrt{2}$$

الف) اگرچه یک مثلث متشکل شده است از ۳ ضلع و ۳ زاویه که مجموع آن‌ها ۱۸۰ درجه است.

$$\left(\frac{1}{2} \times 1 \times \sin 90^\circ \right) + \left(\frac{1}{2} \times 1 \times \sin 119^\circ \right) + \left(\frac{1}{2} \times 1 \times \sin 120^\circ \right) \Rightarrow \frac{1}{2} + \frac{\sqrt{2}}{2} + \frac{1}{2} \Rightarrow \frac{1 + \sqrt{2}}{2}$$

$$\frac{1}{\sin A} = \frac{AC}{\sin 120^\circ} = \frac{2\sqrt{2}}{\sqrt{3}} \times \frac{1}{\sqrt{2}} \Rightarrow \frac{2}{\sqrt{3}} = AC \Rightarrow \frac{2\sqrt{4+1}}{\sqrt{3}} = \frac{\sqrt{4+1}}{\sqrt{3}}$$

$$\frac{1}{\sin A} = \frac{AB}{\sin 90^\circ} \Rightarrow \frac{2}{\sqrt{3}} \times 1 = AB = \frac{2\sqrt{2}}{\sqrt{3}}$$

$$\frac{1}{\sin 120^\circ} = \frac{BC}{\sin 119^\circ} \Rightarrow 2 = \frac{BC}{\sin 119^\circ} \Rightarrow BC = 2 \sin 119^\circ$$

$$3 \log_2 4 \times \log_2 4 \Rightarrow 3 \log_2 4 \Rightarrow 12 \times \frac{1}{2} \times \frac{1}{2} \Rightarrow 3$$

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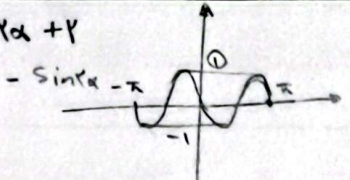
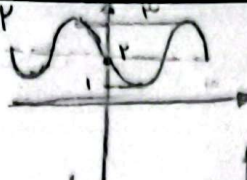
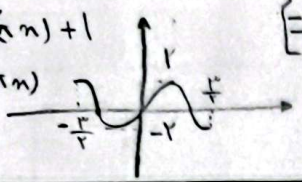
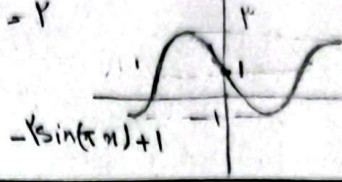
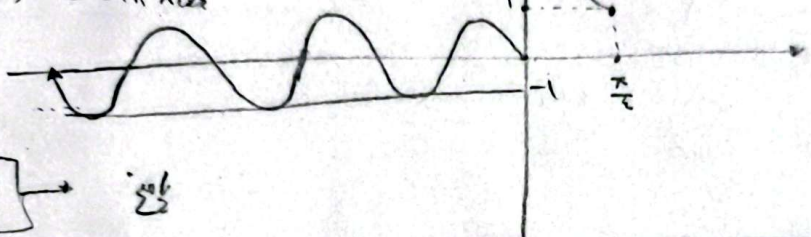
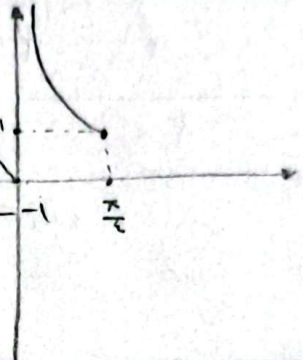
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$$2 \cos^2 \alpha - \cos^2 \alpha - 2 \sin^2 \alpha + \sin^2 \alpha \rightarrow 2 \cos^2 \alpha - 2 \sin^2 \alpha + \sin^2 \alpha - \cos^2 \alpha$$

$$2(\cos^2 \alpha - \sin^2 \alpha) \Rightarrow 2(\cos^2 \alpha - \sin^2 \alpha)(\cos^2 \alpha + \sin^2 \alpha) \Rightarrow 2 \cos 2\alpha$$

$$2 \cos 2\alpha - \cos 2\alpha = \cos 2\alpha = 1 \Rightarrow \cos 2\alpha = 1 \Rightarrow 2\alpha = 0 \Rightarrow \alpha = 0$$

$$\sin 2\alpha = 2 \sin \alpha \cos \alpha \Rightarrow 2 \times 0 \times 1 = 0 \Rightarrow \sin 2\alpha = \sin 0 \Rightarrow 2\alpha = 0 \Rightarrow \alpha = 0$$

$-\sin x + r$  $-\sin(x - \pi)$	$-\sin(x + r)$  الف) مساحة المثلث	
$-r \sin(\pi n) + 1$ 	$\left[-\frac{r}{r}, \frac{r}{r}\right] \quad T = r$  ب) مساحة المثلث	6
$\circ \langle \cot u < \frac{\pi}{2} \quad \cot u \rangle$ $\sin u \quad u < 0 \Rightarrow -\sin u$  $R_f \Rightarrow [-1, +\infty)$		7
$a + b \frac{\sin(\pi n)}{\pi} \times \cos(\pi n) \Rightarrow r + b \frac{\sin(\pi n)}{\pi} \Rightarrow a + \frac{b}{\pi} \sin(\pi n)$ $a = r \quad \frac{b}{\pi} \Rightarrow r \Rightarrow b = \pi$ $T \Rightarrow \frac{\pi}{10} \quad \frac{1 \times \pi}{1 \times C} \Rightarrow \frac{\pi}{10} \Rightarrow \frac{1}{\pi} = C \Rightarrow \sin > 0 \Rightarrow C = \frac{1}{\pi}$ $\frac{1 \times \frac{1}{\pi}}{\pi} \Rightarrow \frac{1}{\pi} = \boxed{\frac{1}{\pi}} \Rightarrow \text{الجواب}$		8
$\alpha > \pi \Rightarrow \frac{\pi}{2} \text{ زاوية حادة}$ $3 \cos 2\alpha - 1$ $3 \cos 2\alpha - 1 = 0 \Rightarrow \cos 2\alpha = \frac{1}{3} \Rightarrow \cos 2\alpha = \frac{1}{3}$ $1 + \tan^2 \alpha = \frac{1}{\cos^2 \alpha} \Rightarrow \tan^2 \alpha = \frac{1}{\cos^2 \alpha} - 1 \Rightarrow \tan^2 \alpha = \frac{1 - \cos^2 \alpha}{\cos^2 \alpha} \Rightarrow \tan^2 \alpha = \frac{\sin^2 \alpha}{\cos^2 \alpha} \Rightarrow \tan \alpha = \frac{\sin \alpha}{\cos \alpha}$ $\tan \alpha = \frac{2\sqrt{2}}{1} \Rightarrow \boxed{\tan \alpha = 2\sqrt{2}}$	لبن نموذج من الجدول التالي	9
$-\frac{2\sqrt{2}}{3} \Rightarrow \text{II} \Rightarrow \text{زاوية حادة} \Rightarrow -1/3 \Rightarrow \text{زاوية حادة} \Rightarrow \frac{2\sqrt{2}}{3} \Rightarrow \text{زاوية حادة} \Rightarrow \frac{2\sqrt{2}}{3}$ $-\frac{1}{\pi} \alpha + 1 \Rightarrow -\frac{1}{\pi} \alpha \frac{\pi}{2} + 1 \Rightarrow -\frac{\pi}{2} + 1 \Rightarrow \frac{1}{2} = \boxed{0.5}$		10