۱۹,۷۵

نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره ۱۴ کلاس ....

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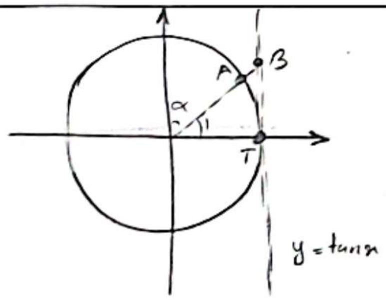

$\hat{\alpha} + \hat{O}_1 = \frac{\pi}{2} \to \sin\hat{\alpha} = \cos\hat{O}_1$

$\cos\hat{O}_1 = \frac{OT}{OB} = \frac{OT}{AO+AB} \xrightarrow{\text{دایره مثلثاتی}} \cos\hat{O}_1 = \frac{1}{1+AB}$

$\sin\alpha = \frac{1}{1+AB} \to 1+AB = \frac{1}{\sin\alpha} \to AB = \frac{1-\sin\alpha}{\sin\alpha}$

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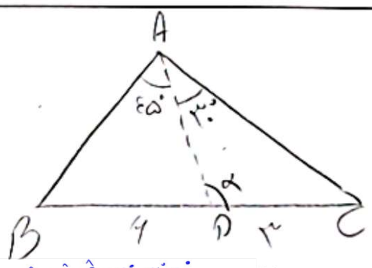

$S_{ADC} = \frac{1}{3} S_{ABC} \to S_{ADC} = \frac{1}{2} \times DA \times AC \times \sin 15^\circ$

$S_{ABD} = \frac{2}{3} S_{ABC} \to S_{ABD} = \frac{1}{2} \times AD \times AB \times \sin 45^\circ$

$S_{ABD} = 2 S_{ADC} \longrightarrow \frac{\frac{1}{2} \times AD \times AB \times \frac{\sqrt{2}}{2}}{\frac{1}{2} \times DA \times AC \times \frac{1}{2}} = 2$

$\frac{2}{\sqrt{2}} \to \sqrt{2}$

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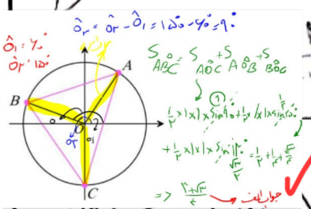

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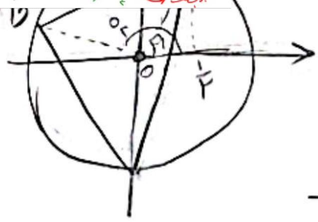

$A(\frac{1}{2}, \dots) \to \hat{O}_1 = 60^\circ = \frac{\pi}{3}$

$B(\dots, \frac{1}{2}) \longrightarrow \hat{O}_2 = 150^\circ \to \frac{5\pi}{6}$

$AO = BO = OC = 1 \to (1)$

$AC \to \sqrt{(\frac{1}{2})^2 + (\frac{\sqrt{3}}{2}+1)^2} \to \frac{\sqrt{5+2\sqrt{3}}}{2}$

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

ب) $AB = \sqrt{(\frac{1}{2}+\frac{\sqrt{3}}{2})^2 + (\frac{\sqrt{3}}{2}-\frac{1}{2})^2} = \sqrt{2}$

کل $\to \sqrt{3} + \sqrt{2} + \frac{\sqrt{5+2\sqrt{3}}}{2}$

$AC = \sqrt{2+\sqrt{3}}$

محیط $= \sqrt{2} + \sqrt{3} + \sqrt{2+\sqrt{3}}$

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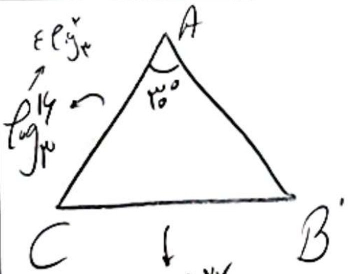

$a^2 + b^2 - 2ab\cos 30^\circ = c^2$ $\quad a^2 = 4c^2 = \Delta$

$0 = (c^2 - a^2) + a\sqrt{3}\, b - b^2$ $\quad \frac{\sqrt{4c^2-a} + \sqrt{3}a}{2} = b$

$\frac{ab}{4} = ab\sin 30^\circ \times \frac{1}{2} \to S \to \frac{\sqrt{4c^2-a} + \sqrt{3}a}{2} \times \frac{a}{4} = \frac{a(a\sqrt{3} + \sqrt{4c^2-a})}{8} = S$

$c = a$

$\log_2 27 = 3\log_2 3$ $\quad \sqrt{(\log_2 3)^4 - 9} + S^2 = 2\sqrt{3}(\log_2 3)^2$

$S = \frac{1}{2} \times AB \times AC \times \sin 30^\circ$

$S = \frac{1}{4} \times 4 \times 3 \times \log_3 2 \times \log_2 3 = 3$

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$x = \cos\alpha \longrightarrow y = 1$ $\quad \sin^2 2\alpha = 1 - \cos^2 2\alpha \to 1 - 1 = 0$

$2\cos^4\alpha - \cos^2\alpha - \sin^2\alpha(2\sin^2\alpha - 1) = 1 \to 2(\cos^4\alpha - \sin^4\alpha) + \sin^2\alpha - \cos^2\alpha = 1$

$2\sin^4\alpha - \sin^2\alpha \to -2\sin^4\alpha + \sin^2\alpha$ $\quad (\cos^2\alpha - \sin^2\alpha)(\cos^2\alpha + \sin^2\alpha)$

$\to 2\cos^2\alpha - 2\sin^2\alpha + \sin^2\alpha - \cos^2\alpha = 1 \to \cos^2\alpha - \sin^2\alpha = 1 \to \cos 2\alpha$

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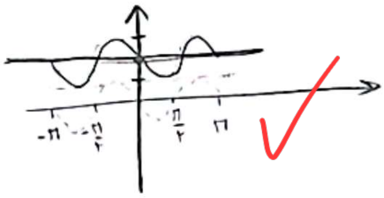
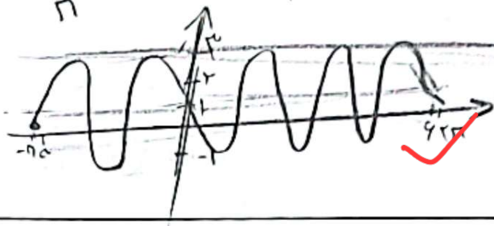
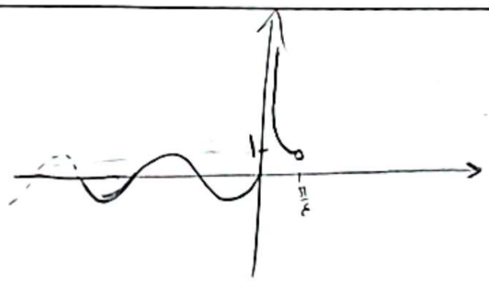
$y=-2\sin x\cos x+2 \quad T=\frac{2\pi}{2}=\pi$ $-\sin 2x+2$  ✓ $y=2\cos\left(x+\frac{1}{2}\right)\pi+1 \rightarrow -2\sin \pi x+1$ $\pi x+\frac{\pi}{2}$ $T=\frac{2\pi}{\pi}=2$  ✓ ۲	۶
 $R_f \Rightarrow [-1,+\infty)$ ✓ ۲	۷
$a+b\sin(2x)\cos(2x)\cos(4cx)$ $\frac{1}{2}\sin(4cx) \quad \cos 4cx$ $a+\frac{b}{4}\sin(4cx) \Rightarrow a-2\sin(4cx) \longrightarrow a=2$ $b<0$ ← با توجه به نمودار $b=-8$ $\frac{-8\times\frac{5}{4}}{2}=-5$ ✓ $2-2\sin(4cx)$ $T=\frac{\pi}{2}-\frac{\pi}{10}=\frac{4\pi}{10}=\frac{2\pi}{5} \rightarrow \frac{2\pi}{4c}=\frac{2\pi}{5} \longrightarrow 4c=5,\ c=\frac{5}{4}$ ۲	۸
$T=\frac{2\pi}{b} \Rightarrow b=2$ $a<0$ ← در ابتدا صعودی است $\rightarrow a=-3,\ \max=4 \longrightarrow c=1$ $f(x)=-3\cos 2x+1 \longrightarrow -3\cos 2x+1=0,\ \cos 2x=\frac{1}{3}$ $\rightarrow 1+\tan^2 2x=\frac{1}{\cos^2 2x} \longrightarrow 1+\tan^2 2x=9 \longrightarrow \lvert\tan 2x\rvert=2\sqrt{2}$ ✓ ۲	۹
$T=3 \longrightarrow f(x)=f(x+3k) \longrightarrow f(-34.5)=f(1.5-36)$ $k\in\mathbb{Z}$ $\Rightarrow f(1.5-12(3))=f(1.5)$ $f(x)=-\frac{1}{2}x+1 \longrightarrow f(1.5)=-0.75+1=0.25=\frac{1}{4}$ ✓ $0\leq x<3$ ۲	۱۰

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