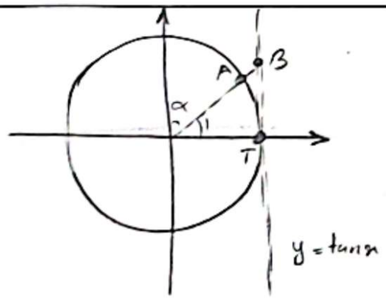
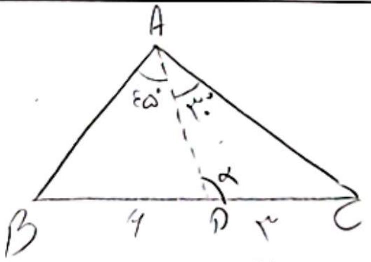
نام و نام خانوادگی ....[illegible].... پاسخنامه تشریحی تکلیف شماره ۱۴ کلاس ....دوازدهم ریاضی A....



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

$\cos\hat{O}_1 = \frac{OT}{OB} = \frac{OT}{AO+AB} \xrightarrow{\text{دایره مثلثاتی}} \cos\hat{O}_1 = \frac{1}{1+AB}$ ۱

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

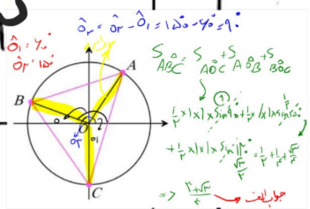


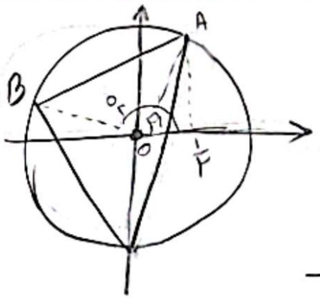
$S_{A\hat{D}C} = \frac{1}{3} S_{A\hat{B}C} \to S_{A\hat{D}C} = \frac{1}{2} \times DA \times AC \times \underbrace{\sin 30^\circ}_{\frac{1}{2}}$

$S_{A\hat{B}D} = \frac{2}{3} S_{A\hat{B}C} \to S_{A\hat{B}D} = \frac{1}{2} \times AD \times AB \times \underbrace{\sin 45^\circ}_{\frac{\sqrt{2}}{2}}$ ۲

$S_{A\hat{B}D} = 2 S_{A\hat{D}C} \longrightarrow \frac{\cancel{\frac{1}{2}} \times \cancel{AD} \times AB \times \frac{\sqrt{2}}{2}}{\cancel{\frac{1}{2}} \times \cancel{DA} \times AC \times \frac{1}{2}} = 2$

$\frac{AB}{AC} = \frac{2}{\sqrt{2}} \to \sqrt{2}$





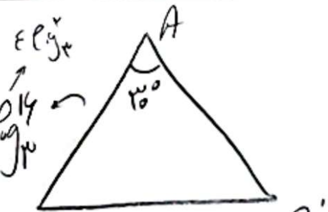
$A(\frac{1}{2}, \dots) \to \hat{O}_1 \Rightarrow 60^\circ = \frac{\pi}{3}$

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

$\overline{AO} = \overline{BO} = \overline{OC} = 1 \to (1)$ ۳

$AC \Rightarrow \sqrt{(\frac{1}{2})^2 + (\frac{\sqrt{3}+2}{2})^2} \longrightarrow \frac{\sqrt{5+2\sqrt{3}}}{2}$ $\quad BC = \sqrt{(\frac{\sqrt{3}}{2})^2 + (\frac{\sqrt{3}}{2})^2} = \frac{2\sqrt{3}}{2} = \sqrt{3}$

ب) $AB = \sqrt{(\frac{1}{2}+\frac{\sqrt{3}}{2})^2 + (\frac{\sqrt{3}}{2}-\frac{1}{2})^2} \Rightarrow \sqrt{2}$ $\quad$ محیط $\to \sqrt{3}+\sqrt{2}+\frac{\sqrt{5+2\sqrt{3}}}{2}$



$4\log_2^2$

$\log_3^{16}$

$\log_2^{27} = 3\log_2^3$

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

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

$\frac{ab}{4} = ab\sin 30^\circ \times \frac{1}{2} \to S \to \frac{\sqrt{4c^2-a} + \sqrt{3}a}{2} \times \frac{a}{4} = \frac{a(a\sqrt{3}+\sqrt{4c^2-a})}{8} = S$ ۴

$c = a$

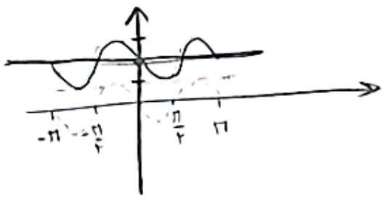
$\sqrt{(\log_5^2)4-9} + S^2 = 2\sqrt{3}(\log_3^2)$

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

$2\cos^4\alpha - \cos^2\alpha - \underbrace{\sin^2\alpha(2\sin^2\alpha - 1)}_{2\sin^4\alpha - \sin^2\alpha \,\to\, -2\sin^4\alpha+\sin^2\alpha} = 1 \to 2\underbrace{(\cos^4\alpha - \sin^4\alpha)}_{(\cos^2\alpha-\sin^2\alpha)\underbrace{(\cos^2\alpha+\sin^2\alpha)}_{1}} + \sin^2\alpha - \cos^2\alpha = 1$ ۵

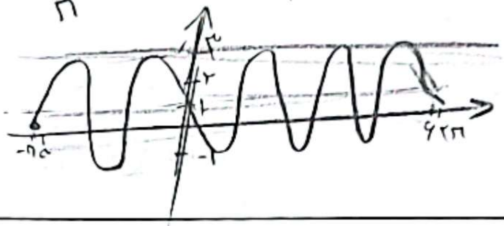
$\to 2\cos^2\alpha - 2\sin^2\alpha + \sin^2\alpha - \cos^2\alpha = 1 \to \cos^2\alpha - \sin^2\alpha = 1 \to \cos 2\alpha$

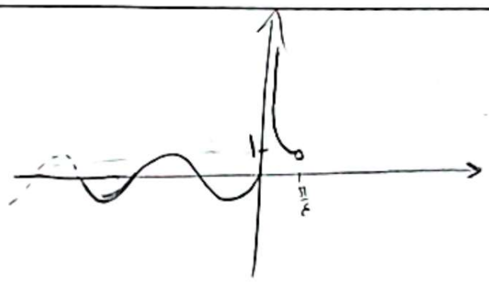
$y=-2\underbrace{\sin x\cos x+2}_{-\sin 2x+2}$ $\quad T=\frac{2\pi}{2}=\pi$



$y=2\cos\underbrace{(x+\frac{1}{2})\pi}_{\pi x+\frac{\pi}{2}}+1\to -2\sin\pi x+1$

$T=\frac{2\pi}{\pi}=2$ ۶





$R_f \Rightarrow [-1,+\infty)$ ۷

$a+b\underbrace{\sin(2x)\cos(2x)}_{\frac{1}{2}\sin(2cx)}\cos(2cx)$ $\quad \cos 2cx$

$b<0 \leftarrow$ با توجه به نمودار

$b=-8$

$\frac{-8\times\frac{5}{4}}{2}=-5$ ۸

$a+\frac{b}{4}\sin(4cx)\Rightarrow a-2\sin(4cx)\longrightarrow a=2$

$2-2\sin(4cx)$

$T=\frac{\pi}{2}-\frac{\pi}{10}=\frac{4\pi}{10}=\frac{2\pi}{5}\to\frac{2\pi}{4c}=\frac{2\pi}{5}\longrightarrow 4c=5,\ c=\frac{5}{4}$

$T=\frac{2\pi}{b}\to b=2$

$a<0 \leftarrow$ از ابتدا صعودی است

$\to a=-3,\ max=2\longrightarrow c=1$

$f(x)=-3\cos 2x+1\longrightarrow -3\cos 2x+1=0$, $\cos 2x=\frac{1}{3}$ ۹

$\to 1+\tan^2 2x=\frac{1}{\cos^2 2x}\longrightarrow 1+\tan^2 2x=9\longrightarrow|\tan 2x|=2\sqrt{2}$

$T=3\longrightarrow f(x)=f(x+3k)\to f(-34.5)=f(1.5-36)$, $k\in\mathbb{Z}$

$\Rightarrow f(1.5-12(3))=f(1.5)$ ۱۰

$f(x)=-\frac{1}{2}x+1\longrightarrow f(1.5)=-0.75+1=0.25=\frac{1}{4}$

$0\le x<3$