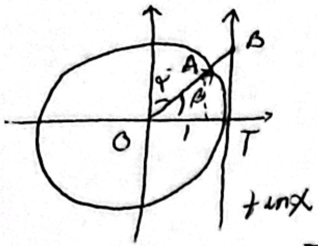
نام و نام خانوادگی آرین کریمی پاسخنامه تشریحی تکلیف شماره ۱۴ کلاس ......

۱



$TB = \tan\beta = \underbrace{\cot\alpha}_{\alpha+\beta=90^\circ}$

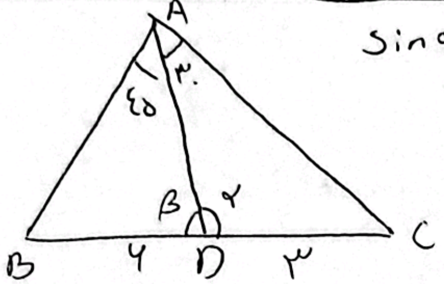
$OA = r = 1 \ , \ OT = 1$

$\} \ OB^2 = (OT)^2 + (TB)^2$

$OB = \sqrt{1^2 + \underbrace{\cot^2\alpha}_{\frac{1}{\sin^2\alpha}}} \rightarrow OB = \frac{1}{\sin\alpha}$

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

۲



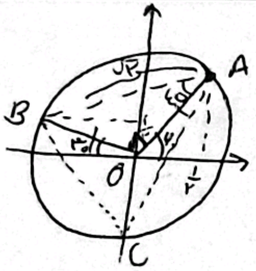
$\underbrace{\sin\alpha = \sin\beta}_{\alpha+\beta=180^\circ}$

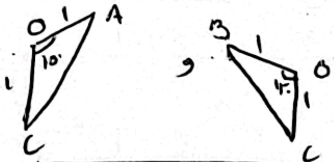
$\frac{3/4}{\sin 30} = \frac{AC}{\sin\alpha}$

$\frac{4/\,4\sqrt{2}}{\sin 45} = \frac{AB}{\sin\beta}$

$\} \ \frac{\frac{AB}{\cancel{\sin\beta}}}{\frac{AC}{\cancel{\sin\alpha}}} = \frac{4\sqrt{2}}{4} \Rightarrow \frac{AB}{AC} = \boxed{\sqrt{2}}$

۳





→ ~~ABC~~ با استفاده از قضیه cos داریم:

$AC = \sqrt{2+\sqrt{3}} = \frac{\sqrt{2}+\sqrt{6}}{2}$

$\boxed{P = \frac{3\sqrt{2}+2\sqrt{3}+\sqrt{6}}{2}} \leftarrow BC = \sqrt{3}$

زاویه A نصف زاویه محاطی BC که ۱۲۰° است: $\hat{A} = 60$

$\sin A \times \frac{1}{2} \times AC \times AB = S_\Delta$

$\hookrightarrow \frac{\sqrt{3}}{2} \times \frac{1}{2} \times \frac{\sqrt{2}+\sqrt{6}}{2} \times \sqrt{2} = \boxed{\frac{3+\sqrt{3}}{4}}$

۴

$\underbrace{2x^4 - x^2}_{x^2(2x^2-1)} + \sin^2(\alpha)(\cos 2\alpha) \xrightarrow{x=\cos} \cos^2\alpha(\cos 2\alpha) + \underbrace{\sin^2\alpha(\cos 2\alpha)}$

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

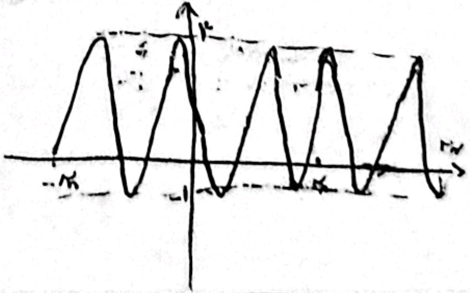
$\cos 2\alpha = 1 \rightarrow 2\alpha = \pi \rightarrow \frac{\pi}{2} = \alpha \Rightarrow \boxed{\sin 2\alpha = 0}$

④ جابه جا شد با سؤال ۱۴
۱۰
تا الان یک سؤال جلوتر

۵

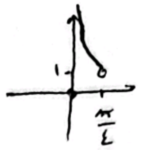
$-\sin 2x + 2 \rightarrow T = \pi$

$-2\sin \pi x + 1 \rightarrow T = 2$



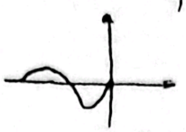
$f(x) = \begin{cases} \cot x & ; ۰ < x < \frac{\pi}{۴} \\ \sin x & ; x \le ۰ \end{cases}$ →

→



$R \in (۱, +\infty)$

→

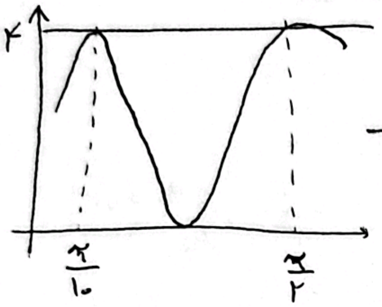


$\rightarrow R \in [-۱, ۱]$

$\boxed{R_f \in [-۱, +\infty)}$

۶

$f(x) = a + b\sin(cx)\cos(cx)\cos(۲cx) = a + \frac{b}{۴}\sin(۴cx)$



$\rightarrow T = \frac{۳\pi}{|۴c|} = \frac{۲\pi}{۵} \Rightarrow ۴c = ۵ \rightarrow c = \frac{۵}{۴}$

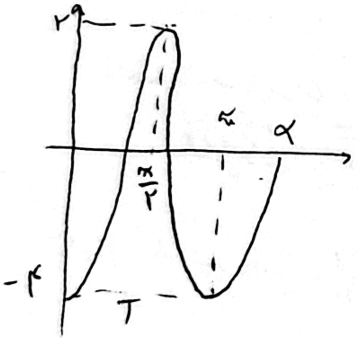
$\overset{a}{\cancel{۴}} + |\frac{b}{۴}| = ۴$

$\underset{a}{\cancel{۴}} - |\frac{b}{۴}| = ۰$

$\Big\} a = ۲$ و $\frac{b}{۴} = ۲ \rightarrow b = ۸$

$\Big\} \frac{bc}{a} = \boxed{۵}$

۷



$a\cos bx + c \rightarrow |a| + c = ۲$

$-|a| + c = -۴$

$c = -۱$

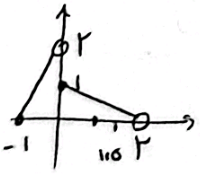
$T = \pi \rightarrow b = ۲$

$|a| = ۳ \rightarrow a = \pm ۳$

$a = -۳$ طبق شکل

$-۳\cos ۲\alpha - ۱ = ۰ \rightarrow -\frac{۱}{۳} = \cos ۲\alpha \Rightarrow \boxed{|\tan ۲\alpha| = ۲\sqrt{۲}}$

۸



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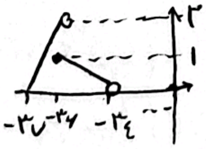
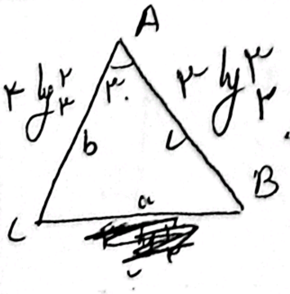


→ با توجه به شکل عرض نقطهٔ ۳٫۵- برابر با عرض نقطهٔ ۱٫۵ است.

$y = -\frac{۱}{۲}x + ۱ \rightarrow x = \frac{۳}{۲} \Rightarrow y = \frac{۱}{۴}$ ⟶ $\boxed{f(-۳٫۵) = f(۱٫۵) = \frac{۱}{۴}}$

۹



$\longrightarrow \frac{۱}{۲} \times \underset{\frac{۱}{۲}}{\cancel{\sin A}} \times ۳\cancel{\frac{\sqrt{۳}}{۲}} \times ۴\cancel{\frac{\sqrt{۳}}{۳}} = ۳$

۱۰