۲۰

نام و نام خانوادگی ....هلیا عطاری.... **پاسخنامه تشریحی تکلیف شماره** ۲۸ **کلاس** ....یازدهم دختر C....

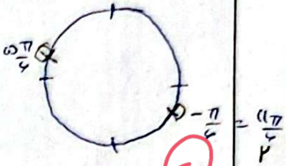
۱

$\frac{1}{\underbrace{\sqrt{\cos^2\alpha}}_{|\cos\alpha|}} - \overset{\tan\alpha}{\frac{1}{\cot\alpha}} = \frac{1-\sin\alpha}{|\cos\alpha|} \to \frac{\cancel{1}-\cancel{1}+\sin\alpha}{|\cos\alpha|} = \overset{\tan\alpha}{\frac{\sin\alpha}{\cos\alpha}} \to \frac{\sin\alpha}{\underbrace{|\cos\alpha|}_{+}} , \frac{\sin\alpha}{\cos\alpha} \to \cos\alpha>0$: I

$\cot\alpha = \frac{\cos\alpha}{\sqrt{1-\cos^2\alpha}} \to \frac{\cos\alpha}{\sin\alpha} = \frac{\cos\alpha}{\underbrace{|\sin\alpha|}_{+}} \to \sin\alpha>0$: II

(I ∩ II : انتهای کمان α در ناحیه اول)

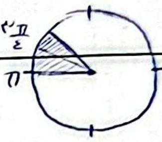
$\sin 2x = \frac{m-1}{4}$ $\quad -\frac{\pi}{12}<x<\frac{5\pi}{12} \xrightarrow{\times 2} -\frac{\pi}{6}<2x<\frac{5\pi}{6} \to -\frac{1}{2}<\sin 2x\le 1$



$\xrightarrow{\sin 2x = \frac{m-1}{4}} -\frac{1}{2} < \frac{m-1}{4} \le 1 \xrightarrow{\times 4} -2 < m-1 \le 4 \xrightarrow{+1} -1 < m \le 5 \to m\in(-1,5]$

اندازه Cosx بزرگتر از اندازه sinx

$\sin x + \cos x < 0$, $\Leftarrow |\cos x| > \sin x \Leftarrow$



$\Leftarrow 3\pi < 4x < 4\pi$

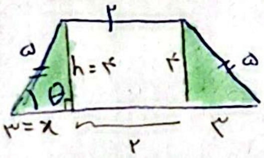
$\tan x+\cot x = -3 \to \frac{\sin x}{\cos x}+\frac{\cos x}{\sin x} = -3 \to \frac{\sin^2x+\cos^2x}{\sin x\cos x} = -3 \to \sin x\cos x = -\frac{1}{3}$

$\frac{1}{\sin^3x+\cos^3x} = \frac{1}{(\sin x+\cos x)(\underbrace{\sin^2x+\cos^2x}_{1}-\underbrace{\sin x\cos x}_{-\frac{1}{3}})} = \frac{3}{\underbrace{(\sin x+\cos x)}_{-\frac{1}{\sqrt{3}}}\times 4} = \frac{-3\sqrt{3}}{4} \to$ جواب نهایی

$\frac{4}{3} = 1+\frac{1}{3} \Leftarrow$

$(\sin x+\cos x)^2 = \underbrace{\sin^2x+\cos^2x}_{1}+2\sin x\cos x \to (\sin x+\cos x)^2 = \frac{3}{3}+\frac{-2}{3} = \frac{1}{3} \to \sin x+\cos x = \overset{\text{غ ق ق}}{\pm}\frac{1}{\sqrt{3}}$

قابل قبول ★ (براساس رابطه ۱)

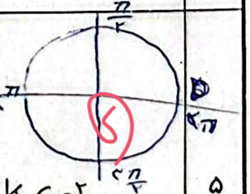


$\cos\theta = 0/6 \to \cos\theta = \frac{x}{5} = 0/6 \to x=3 \Rightarrow 9+h^2 = 25 \Rightarrow h^2=16 \to h = \overset{\text{ق ق}}{\underset{\text{غ ق ق}}{\pm}} 4$

$S_{\text{مثلث}} = \left(\frac{4\times 3}{2}\right)\times 2 = 12$ $\quad S_{\text{مستطیل}} = 2\times 4 = 8$ ۴

$S_{\text{ذوزنقه}} = \overset{\triangle}{S} + \overset{\square}{S} = 12+8 = 20$

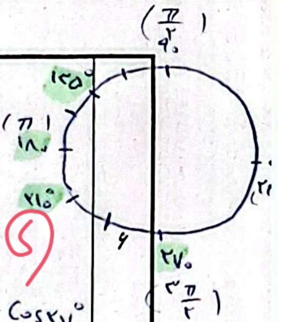
$\tan(\overset{\frac{3\pi}{2}}{270}+15) \times \tan(\overset{-\pi}{-180}+15) - \sin(15)\times\cos(\overset{\frac{3\pi}{2}}{270}-15) = k\cos^2 15$



$\underbrace{(-)\cot 15 \times (+)\tan 15}_{-1} - \underbrace{(+)\sin 15 \times (-)\sin 15^\circ}_{+\sin^2 15} = -1+\sin^2 15 = k\cos^2 15$ ۵

$\Rightarrow -\cancel{\cos^2 15} = h\cancel{\cos^2 15} \Rightarrow h=-1$

$۲۴۳ = ۲۷۰ - ۲۷$ $۱۵۳ = ۱۸۰ - ۲۷°$



$A=\sqrt{۳}\left(-\frac{\sqrt{۳}}{۲}\right)\times \sin\left(\frac{۳\pi}{۲}-۲۷\right)-\sqrt{۲}\left(\frac{\sqrt{۲}}{۲}\right)\times \cos(\pi-۲۷)$

$A=-\frac{۳}{۲}\times(-)\cos ۲۷° - \frac{۲}{۲}\times(-۱)\cos ۲۷° = \frac{۳}{۲}\cos ۲۷° + \frac{۲}{۲}\cos ۲۷° = \frac{۵}{۲}\cos ۲۷°$

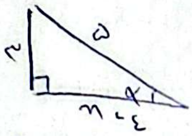
$\frac{۵}{۲}$ برابر می باشد → جواب ۵

$f\left(\frac{\pi}{۲۴}\right) = ۱۶\cos^۲\left(\overbrace{\cancel{۴}\times\frac{\pi}{\cancel{۲۴}_{۶}}}^{\frac{\pi}{۶}=۱۵°}\right)\times \overbrace{\cos^۲\left(\frac{\pi}{۶}\right)}^{(\frac{\sqrt{۳}}{۲})^۲}\times \overbrace{\cos^۲\left(\frac{\pi}{۳}\right)}^{(\frac{۱}{۲})^۲}\times \overbrace{\cos^۲\left(\frac{۲\pi}{۳}\right)}^{(-\frac{۱}{۲})^۲}$

$f\left(\frac{\pi}{۲۴}\right) = \cancel{۱۶}\cos^۲ ۱۵° \times \frac{۳}{\cancel{۴}}\times\frac{۱}{\cancel{۴}}\times\frac{۱}{۴} = \frac{۳\cos^۲ ۱۵}{۴} \xrightarrow{\cos^۲۱۵ = \frac{۲+\sqrt{۳}}{۴}} f\left(\frac{\pi}{۲۴}\right) = \frac{۳(۲+\sqrt{۳})}{۴\times۴} = \frac{۶+۳\sqrt{۳}}{۱۶}$ ۲

$\cos^۲ ۱۵° = \frac{۱+\cos ۳۰°}{۲} = \frac{۱+\frac{\sqrt{۳}}{۲}}{۲} = \frac{۲+\sqrt{۳}}{۴}$

$۱-\sin x = \underset{۲}{\cancel{۴}} + ۴\sin x \to -۳ = ۵\sin x \to \sin x = -\frac{۳}{۵}$



$\to \cos x = \pm\frac{۴}{۵}$ (+ غ ق ق ، − ق ق)

$\to \tan x = \frac{-\frac{۳}{۵}}{-\frac{۴}{۵}} = \frac{۳}{۴}$

$۳^۲ + x^۲ = ۵^۲ \quad x = ۴$ ۸

$\tan x = \frac{۲\tan\frac{x}{۲}}{۱-\tan^۲\frac{x}{۲}} \Rightarrow \frac{۳}{۴} = \frac{۲\tan\frac{x}{۲}}{۱-\tan^۲\frac{x}{۲}} \Rightarrow ۳-۳\tan^۲\frac{x}{۲} = ۸\tan\frac{x}{۲} \Rightarrow ۳\tan^۲\frac{x}{۲}+۸\tan\frac{x}{۲}-۳=۰$

$\times \quad (\tan^۲\frac{x}{۲}+۸\tan\frac{x}{۲}-۹)$

$\Rightarrow (\tan\frac{x}{۲}+۹)(\tan\frac{x}{۲}-۱)=۰ \to \begin{cases} = -\frac{۹}{۳} = -۳ \\ \frac{۱}{۳} \text{ غ ق ق} \end{cases}$

چون x در ربع سوم پس $\frac{x}{۲}$ در ربع دوم و $\tan\frac{x}{۲}<۰$

★ $\tan\frac{\theta}{۲} = \frac{\sin\theta}{۱+\cos\theta} = \frac{۱-\cos\theta}{\sin\theta}$

$\underbrace{\frac{\sin\theta}{۱-\cos\theta}}_{\cot\frac{\theta}{۲}} + \underbrace{\frac{۱+\cos\theta}{\sin\theta}}_{\cot\frac{\theta}{۲}} = ۲\cot\frac{\theta}{۲} = k\cot\frac{\theta}{۲}$ ۹

$\to k = ۲$

$\cos\left(\frac{۱۱\pi}{۴}+\alpha\right) = ۰٫۶$

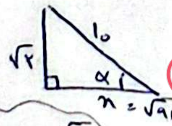
$\cos\left(\frac{۱۱\pi}{۴}+\alpha\right) = \cos\frac{۱۱\pi}{۴}\cos\alpha - \sin\frac{۱۱\pi}{۴}\sin\alpha$

$= \cos\left(\overset{۲\pi}{\cancel{\frac{۸\pi}{۴}}}+\frac{۳\pi}{۴}\right)\times\cos\alpha - \sin\frac{۳\pi}{۴}\times\sin\alpha$

$= \left(-\frac{\sqrt{۲}}{۲}\times\frac{-۷\sqrt{۲}}{۱۰}\right) - \left(\frac{\sqrt{۲}}{۲}\times\frac{\sqrt{۲}}{۱۰}\right) = \frac{۱۴}{۲۰}-\frac{۲}{۲۰}$

$= \frac{۱۲}{۲۰} = ۰٫۶ \to$ جواب ج

$= \frac{۳}{۵}$



$\sin\alpha = \frac{\sqrt{۲}}{۱۰}$ $\sin\alpha>۰$ (۲)

$x^۲+۲=۱۰۰$

$x=\sqrt{۹۸}$ ناحیه دوم ۱۰

$\cos\alpha<۰$ ناحیه دوم غ ق ق

$\cos\alpha = \pm\frac{\sqrt{۹۸}}{۱۰}$ (ق ق) $\cos\alpha<۰$ (−)

$\cos\alpha = \frac{-۷\sqrt{۲}}{۱۰}$