نام و نام خانوادگی ......هستی جابکی.............. پاسخنامه تشریحی تکلیف شماره ..۲۸... کلاس ..یازدهم ریاضی A..............

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$\frac{1}{\sqrt{\cos^2\alpha}} - \frac{1}{\cot\alpha} = \frac{1-\sin\alpha}{|\cos\alpha|}$ ، $\cot\alpha = \frac{\cos\alpha}{\sqrt{1-\cos^2\alpha}}$ ⇐ ناحیه چندم؟ ⇐ α

$\hookrightarrow \frac{1}{|\cos\alpha|} - \frac{1-\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \Rightarrow \frac{\cancel{1}-\cancel{1}+\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \to |\cos\alpha| = \cos\alpha \Rightarrow \cos\alpha > 0 \Rightarrow$ ناحیه ۱ یا ۴

$\cot\alpha = \frac{\cos\alpha}{\sin\alpha} = \frac{\cos\alpha}{\sqrt{\underbrace{1-\cos^2\alpha}_{\sin^2\alpha}}} = \frac{\cos\alpha}{|\sin\alpha|} \to \sin\alpha = |\sin\alpha| \Rightarrow \sin\alpha > 0 \Rightarrow$ ناحیه ۱ یا ۲

جواب: زاویه $\hat{\alpha}$ در ناحیه ی اول است!

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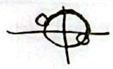
$\frac{-\pi}{12} < x < \frac{5\pi}{12} \xrightarrow{\times 2} \frac{-\pi}{6} < 2x < \frac{5\pi}{6}$:  : $[1]$ $-\frac{1}{2}$ و $\frac{1}{2}$ $\Rightarrow -\frac{1}{2} < \sin 2x \leq 1$

$\sin 2x = \frac{m-1}{4}$

$\Rightarrow -\frac{1}{2} < \frac{m-1}{4} \leq 1 \to -2 < m-1 \leq 4 \to -1 < m \leq 5$: جواب: $m = (-1, 5]$

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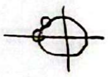
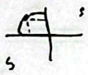
$\tan x + \cot x = -3$ ، $3\pi < 4x < 4\pi \Rightarrow \frac{1}{\sin^3 x + \cos^3 x} = ?$

$\hookrightarrow = \frac{1}{\sin x . \cos x} = -3 \to \boxed{\sin x . \cos x = \frac{-1}{3}}$

$\hookrightarrow$ اتحاد چاق و لاغر: $(\sin x + \cos x)(\underbrace{\cancel{\sin^2 x + \cos^2 x}}_{1} - \underbrace{\sin x . \cos x}_{\frac{-1}{3}})$

$\frac{3\pi}{4} < x < \pi \Rightarrow$  $\to \begin{cases} s>0 \\ c<0 \end{cases} \Rightarrow \underline{c > s}$  $:*_1$

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

$(\sin x + \cos x) = \pm\sqrt{\underbrace{\cancel{\sin^2 x + \cos^2 x}}_{1} + 2\underbrace{\sin x . \cos x}_{\frac{-1}{3}}} = \pm\sqrt{1-\frac{2}{3}} = \pm\sqrt{\frac{1}{3}}$

$\hookrightarrow \frac{1}{-4/3\sqrt{3}} = \frac{-3}{4}\sqrt{3}$: جواب

$\xrightarrow{1*}$: $\sin x + \cos x = \frac{-1}{\sqrt{3}}$

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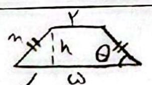
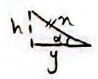
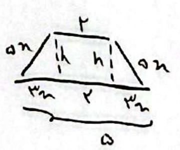
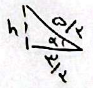


$\cos\theta = \frac{6}{10} \to S = ? = \frac{(2+5) \times h}{2} = \frac{7h}{2}$

 $\to \cos\alpha = \frac{3}{5} = \frac{y}{x} \to \begin{cases} y = 3x \\ x = 5x \end{cases} \to$  $\Rightarrow 6x + 2 = 5$

$6x = 3$

$\boxed{x = \frac{1}{2}}$

$\Rightarrow$ 

$\hookrightarrow$ فیثاغورث: $h = \sqrt{\frac{25}{4} - \frac{9}{4}} = \frac{4}{2} = 2$

$\Rightarrow S = \frac{7 \times 2}{2} = \underline{7}$: جواب

۵

$\tan(285^\circ) \times \tan(-165^\circ) - \sin(1095^\circ) \times \cos(255^\circ) = K\cos^2(15^\circ) \to K = ?$

$\hookrightarrow -\underbrace{\tan(270+15)}_{\cot} \times \tan(180+15) - [\sin(\underbrace{1080}_{3\times 360 = 6\pi}+15) \times \underbrace{\cos(270-15)}_{\sin}]$

$\Rightarrow -\underbrace{\cot 15 \times \tan 15}_{1} - [\sin 15 \times -\sin 15] \Rightarrow -1 - (-\sin^2 15) = \underline{\sin^2 15 - 1} = K\cos^2 15$

$\hookrightarrow \sin^2 15 - 1 = -\cos^2 15 = K\cos^2 15 \Rightarrow \underline{K = -1}$: جواب

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$A = \sqrt{۳}\cos(۲۱۰^\circ) \times \sin(۲۴۳^\circ) - \sqrt{۲}\sin(۲۴۳^\circ) - \sqrt{۲}\sin(۱۳۵^\circ) \times \cos(۱۵۳^\circ) \Rightarrow \dfrac{A}{\cos(۲۷^\circ)} = ?$

$\sqrt{۳} \times \dfrac{-\sqrt{۳}}{۲} \times \underbrace{\sin(۲۷۰-۲۷)}_{-\cos ۲۷} - \sqrt{۲} \times \underbrace{\sin(۲۷۰-۲۷)}_{-\cos ۲۷} - \sqrt{۲} \times \dfrac{\sqrt{۲}}{۲} \times \underbrace{\cos(۱۸۰-۲۷)}_{-\cos ۲۷}$

$\Rightarrow -\cos ۲۷^\circ \times \left(\dfrac{\sqrt{۳}\times -\sqrt{۳}}{۲} - \sqrt{۲} - \sqrt{۲}\times\dfrac{\sqrt{۲}}{۲}\right) = -\cos ۲۷ \times \left(\dfrac{-۳}{۲} - \sqrt{۲} - ۱\right) = A$

$\dfrac{A}{\cos ۲۷} = \dfrac{\cancel{\cos ۲۷} \times (\frac{۵}{۲} + \sqrt{۲})}{\cancel{\cos ۲۷}} = \underline{\dfrac{۵}{۲} + \sqrt{۲}}$: جواب

۷

$f(x) = ۱۶\cos^۲(۳x) \times \cos^۲(۶x) \times \cos^۲(۱۲x) \times \cos^۲(۲۴x) \Rightarrow f(\frac{\pi}{۳۶}) = ?$

$۱۶ \times \cos^۲(\frac{۳\times\pi}{۳۶}) \times \cos^۲(۶\times\frac{\pi}{۳۶}) \times \cos^۲(\frac{۱۲\times\pi}{۳۶}) \times \cos^۲(\frac{\cancel{۲۴}^{۲}\pi}{\cancel{۳۶}_{۳}}) = ?$

$\cos^۲(\frac{۲\pi}{۳}) = \underline{۰} \longrightarrow \dots \times ۰ = \underline{۰}$: جواب

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x در ناحیه سوم !

$\dfrac{۱-\sin x}{۱+\sin x} = ۴ \rightarrow \tan\dfrac{x}{۲} = ?$

$\xrightarrow{۱\times(۱-\sin x)}_{(۱-\sin x)} \dfrac{۱+\sin^۲ x - ۲\sin x}{۱-\sin^۲ x} = ۴ \Rightarrow ۱+\sin^۲ x - ۲\sin x = ۴ - ۴\sin^۲ x \Rightarrow ۵\sin^۲ x - ۲\sin x - ۳ = ۰$

$\Rightarrow a+b+c=۰ \rightarrow \sin x = ۱ , \cancel{\frac{-۳}{۵}}$ غ ق ق $\xrightarrow[\sin x>۰]{\text{ناحیه سوم } x} \sin x = \underline{۱} \rightarrow x = \dfrac{\pi}{۲} \rightarrow \tan\dfrac{\pi}{۴} = \underline{۱}$: جواب

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$\dfrac{\sin\alpha}{۱-\cos\alpha} + \dfrac{۱+\cos\alpha}{\sin\alpha} = k\cot\frac{\alpha}{۲} \rightarrow k = ?$

$\sin\alpha \rightarrow \sin^۲\alpha + \cancel{\cos^۲\alpha}$

$\dfrac{\sin^۲\alpha + \cancel{۱} - \cancel{\cos^۲\alpha}}{\sin\alpha \times (۱-\cos\alpha)} = \dfrac{۲\sin^{\cancel{۲}}\alpha}{\cancel{\sin\alpha}(۱-\cos\alpha)} = ۲ \times \underbrace{\dfrac{\sin\alpha}{۱-\cos\alpha}}_{\cot\frac{\alpha}{۲}} = ۲\cot\frac{\alpha}{۲} = k\cot\frac{\alpha}{۲} \Rightarrow k = \underline{۲}$: جواب

۱۰

α در ناحیه دوم !

$\sin\alpha = \dfrac{\sqrt{۲}}{۱۰} \rightarrow \cos\left(\dfrac{۱۱\pi}{۴} + \alpha\right) = ?$

$x = \sqrt{۱۰۰ - ۲} = \sqrt{۹۸} = \underline{۷\sqrt{۲}}$

$\cos(۲\pi + \frac{۳\pi}{۴} + \alpha) = \cos(\frac{۳\pi}{۴} + \alpha) = \underbrace{\cos\frac{۳\pi}{۴}}_{-\frac{\sqrt{۲}}{۲}} \cdot \cos\alpha - \underbrace{\sin\frac{۳\pi}{۴}}_{\frac{\sqrt{۲}}{۲}} \cdot \sin\alpha$

$\dfrac{-\sqrt{۲}}{۲} \times (\underbrace{\cos\alpha}_{\frac{-۷\sqrt{۲}}{۱۰}} + \underbrace{\sin\alpha}_{\frac{\sqrt{۲}}{۱۰}}) = \dfrac{-\sqrt{۲}\times\sqrt{۲}}{۲۰} \times \underbrace{(-۷+۱)}_{-۶} = \underline{\dfrac{۶}{۱۰}} = \underline{\dfrac{۳}{۵}}$: جواب

ربع دوم !