نام و نام خانوادگی ...امیرعباس عادلی... ۲۰ پاسخنامه تشریحی تکلیف شماره ..۱۸.. کلاس ...دهم B...

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$\tan\left(\frac{11\pi}{4}-\frac{\pi}{4}\right)+\sin\left(\frac{12\pi}{4}+\frac{3\pi}{4}\right)\cos\left(\frac{12\pi}{4}+\frac{\pi}{4}\right)=$ (3π, 3π, 3π)

$-\tan\left(\frac{\pi}{4}\right)+\sin\left(\frac{3\pi}{4}\right)\times\cos\left(\frac{\pi}{4}\right)=-1+\left(\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{2}\right)=\frac{1}{2}-1=-\frac{1}{2}$

$\tan\left(\frac{18\pi}{6}-\frac{\pi}{6}\right).\sin\left(\frac{12\pi}{3}-\frac{\pi}{3}\right)+\cos\left(\frac{18\pi}{6}+\frac{2\pi}{6}\right)=$ (3π, 4π, 3π)

$-\cot\left(\frac{\pi}{6}\right)\times\sin\left(\frac{\pi}{3}\right)+-\cos\left(\frac{\pi}{3}\right)=-\frac{\sqrt{3}}{3}\times-\frac{\sqrt{3}}{2}+\left(-\frac{1}{2}\right)=0$

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$\cot x=4\Rightarrow\frac{\cos x}{\sin x}=4\Rightarrow\cos x=4\sin x\Rightarrow$

$\frac{3\cos x-\sin x}{\cos x+\sin x}=\frac{3(4\sin x)-\sin x}{(4\sin x)+\sin x}=\frac{11\sin x}{5\sin x}=\boxed{\frac{11}{5}}$

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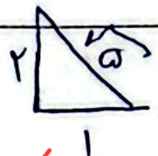
$\sin\alpha=2\cos\alpha\Rightarrow\frac{\sin\alpha}{\cos\alpha}=\tan\alpha=\frac{2}{1}\longrightarrow$



$\sqrt{1^2+2^2}=\sqrt{5}=$ وتر

$\Rightarrow\sin\alpha=\frac{-2}{\sqrt{5}}$ و $\cos\alpha=-\frac{1}{\sqrt{5}}=\frac{-\sqrt{5}}{5}$

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(سوال ۴ قسمت الف) $\cos\left(\frac{11\pi}{4}\right)\cos\alpha-\sin\left(\frac{11\pi}{4}\right)\sin\alpha=\frac{-\sqrt{2}\times-7\sqrt{2}}{10\times2}-\frac{1}{10}=\frac{7}{10}-\frac{1}{10}=\boxed{\frac{3}{5}}$

$\cos\left(\frac{11\pi}{4}\right)=\frac{-\sqrt{2}}{2}$، $\cos\alpha$: $\sqrt{1^2-\left(\frac{\sqrt{2}}{10}\right)^2}=\frac{7\sqrt{2}}{10}$، چون ناحیه ۲ $\Leftarrow\frac{-7\sqrt{2}}{10}$، $-1\times\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{10}$

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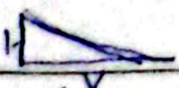
(قسمت ب) $\sin\left(\frac{13\pi}{4}\right)\cos\alpha+\cos\left(\frac{13\pi}{4}\right)\sin\alpha=\frac{-7}{10}-\frac{1}{10}=\frac{-8}{10}=\boxed{-\frac{4}{5}}$

$\frac{-\sqrt{2}}{2}\times\frac{7}{5\sqrt{2}}$ ، $\frac{-\sqrt{2}}{2}\times\frac{1}{5\sqrt{2}}$

$\tan=\frac{1}{7}\Rightarrow$



$\Rightarrow\sqrt{1^2+7^2}=\sqrt{50}=5\sqrt{2}\rightarrow$ وتر $\Rightarrow\sin=\frac{1}{5\sqrt{2}}$ و $\cos=\frac{7}{5\sqrt{2}}$

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$2\sin^2x+\cos^2x=\frac{4}{3}\Rightarrow\underbrace{\sin^2x+\cos^2x}_{1}+\sin^2x=\frac{4}{3}\Rightarrow\sin^2x=\frac{4}{3}-1=\frac{1}{3}$

حال می‌گوییم: $\cos^2x=1-\frac{1}{3}=\frac{2}{3}\Rightarrow$

$\tan^2x=\frac{\sin^2x}{\cos^2x}\Rightarrow\tan^2x=\frac{\frac{1}{3}}{\frac{2}{3}}=\boxed{\frac{1}{2}}$

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$S = \frac{1}{2}ab\sin\alpha \rightarrow \frac{9\sqrt{3}}{2} = \frac{1}{2} \times \sqrt{3} \times 6 \times \sin\alpha \Rightarrow \sin\alpha = \frac{3 \times \sqrt{3}}{2\sqrt{3} \times \sqrt{3}} = \frac{3\sqrt{3}}{6} = \boxed{\frac{\sqrt{3}}{2}}$

$\Rightarrow \alpha \neq \frac{\pi}{3}$ کمترین حالت $(60°)$ و $\alpha = \frac{2\pi}{3}$ بیشترین حالت $(120°)$

$\Rightarrow \frac{\alpha_{max}}{\alpha_{min}} = \frac{\frac{2\pi}{3}}{\frac{\pi}{3}} = \boxed{2}$ ✓ (۴)

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$ab\sin\theta = S \Rightarrow \sin(120°) \times (3k)(2k) = 9\sqrt{3} \Rightarrow \sin(120°) \times 6k^2 = 9\sqrt{3}$

$\Rightarrow k^2 = \frac{9\sqrt{3}}{3} = 18 \Rightarrow k = \sqrt{18} \Rightarrow 2k = 6\sqrt{2}, \; 3k = 9\sqrt{2}$ ÷۲

$\Rightarrow$ محیط مثلث $= (6\sqrt{2} + 9\sqrt{2})2 = \boxed{30\sqrt{2}}$ ✓ (۴)

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$S_{ABC} = 7 \times 8 \times \sin A \times \frac{1}{2} = \frac{28\sin A}{2}$

$S_{ADE} = 7' \times 4' \times \sin A \times \frac{1}{2} = 14\sin A$

$\left(\frac{28}{2} - \frac{28}{2}\right)\sin A = 1/7 \Rightarrow \sin A = \frac{1}{2}$

$\tan\hat{A} = \frac{1}{\sqrt{3}} = \boxed{\frac{\sqrt{3}}{3}}$ ✓ (۴)

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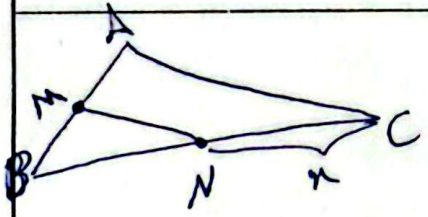

$\frac{MN}{AC} = \frac{BM}{AB} = \frac{BN}{BC}$ (۴)

$S_{ABC} = 2S_{BMN} \Rightarrow BM \times BN \times \frac{1}{2} \times 2 \times \sin B = \frac{AB}{(AM+BM)} \times \frac{BC}{(BN+NC)} \times \frac{1}{2} \times \sin B \Rightarrow$

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$\frac{S_{BMNC}}{2} = \frac{S_{AMNC}}{2} + \frac{S_{AMNC}}{2} + \frac{S_{BMNC}}{2} + \frac{S_{BMNC}}{2} \Rightarrow \frac{9MBNC - 5BMNC}{2} =$

$\frac{5AMNC}{2} \Rightarrow \frac{BMNC}{AMNC} = \frac{5}{4} \Rightarrow \boxed{\frac{BM}{AM} = \frac{5}{4}}$ ✓

$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow |\sin\alpha| = -\sin\alpha \Rightarrow \boxed{\sin\alpha < 0}$

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$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|} = \frac{1}{|\cos\alpha|} + \frac{\sin\alpha}{|\cos\alpha|} \Rightarrow$

$\frac{-\sin\alpha}{\cos\alpha} = \frac{\sin\alpha}{|\cos\alpha|} \Rightarrow \frac{-1}{\cos\alpha} = \frac{1}{|\cos\alpha|} \Leftarrow \boxed{\cos\alpha < 0}$

$\Rightarrow$ ربع سوم ✓ (۴)