نام و نام خانوادگی ....صبا زارعی.... پاسخنامه تشریحی تکلیف شماره ..۱۸.. کلاس ....دهم تجربی ۸....

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الف) $\tan\frac{11\pi}{4} + \sin\frac{15\pi}{4}\cos\frac{13\pi}{4} = \tan 135^\circ + \sin 315^\circ \times \cos 225^\circ$

$= -1 + \left(-\frac{\sqrt{2}}{2}\right)\left(-\frac{\sqrt{2}}{2}\right) = \frac{1}{2} - 1 = \boxed{-\frac{1}{2}}$

ب) $\tan\frac{17\pi}{6} \times \sin\frac{11\pi}{3} + \cos\frac{10\pi}{3} = \tan 150^\circ \times \sin 300^\circ + \cos 240^\circ$

$= -\frac{\sqrt{3}}{3} \times -\frac{\sqrt{3}}{2} + \left(-\frac{1}{2}\right) = \frac{1}{2} - \frac{1}{2} = \boxed{0}$

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$\cot x = 4 \rightarrow \frac{\cos x}{\sin x} = \frac{4}{1}$ چون مسئله فقط نسبت است می‌توانیم sin را برابر یک و cos را برابر چهار قرار دهیم:

$$\frac{3\cos x - \sin x}{\cos x + \sin x} = \frac{12-1}{4+1} = \boxed{\frac{11}{5}}$$

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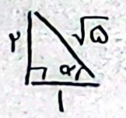

$\cos\alpha = \frac{-1}{\sqrt{5}} = \boxed{\frac{-\sqrt{5}}{5}}$

$\frac{\sin\alpha}{\cos\alpha} = 2$

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الف) $\sin\alpha = \frac{\sqrt{2}}{10} \rightarrow$ (مثلث: $\sqrt{2}$، 10، $7\sqrt{2}$) $\rightarrow \cos\alpha = -\frac{7\sqrt{2}}{10}$ ناحیه ۲

$\cos\left(\frac{11\pi}{4}+\alpha\right) = \cos(135^\circ+\alpha) = \cos 135^\circ\cos\alpha - \sin 135^\circ \sin\alpha = \left(-\frac{\sqrt{2}}{2}\times\frac{-7\sqrt{2}}{10}\right) - \left(\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{10}\right) = \frac{12}{20} = \boxed{\frac{3}{5}}$

ب) $\tan\alpha = \frac{1}{7} \rightarrow$ (مثلث: 1، 7، $5\sqrt{2}$) $\rightarrow \sin\alpha = \frac{1}{5\sqrt{2}}\ ,\ \cos\alpha = \frac{7}{5\sqrt{2}}$

$\sin\left(\frac{13\pi}{4}+\alpha\right) = \sin(225^\circ+\alpha) = \sin 225^\circ\cos\alpha + \cos 225^\circ \sin\alpha = \left(-\frac{\sqrt{2}}{2}\times\frac{7}{5\sqrt{2}}\right) + \left(-\frac{\sqrt{2}}{2}\times\frac{1}{5\sqrt{2}}\right) = -\frac{8}{10} = \boxed{-\frac{4}{5}}$

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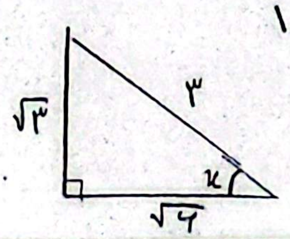
$\sin^2 x + \underbrace{\sin^2 x + \cos^2 x}_{1} = \frac{4}{3} \rightarrow \sin^2 x = \frac{1}{3} \rightarrow \sin x = \frac{\sqrt{3}}{3}$



$\Rightarrow \tan x = \frac{\sqrt{3}}{\sqrt{6}} = \frac{\sqrt{2}}{2} \xrightarrow{\tan^2 x} \frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{2} = \boxed{\frac{1}{2}}$

$S_{\Delta} = \frac{1}{2} ab \sin\alpha = \frac{1}{2} \times 4 \times \sqrt{3} \times \sin\alpha = 6\sqrt{3} \to \sin\alpha = \frac{6\sqrt{3}}{8} = \frac{\sqrt{3}}{2}$

$\alpha = 60^\circ, 120^\circ \leftarrow$

$\frac{Max\,\alpha}{Min\,\alpha} = \frac{120^\circ}{60^\circ} = 2$ برابر

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$S_{\square} = ab\sin\alpha = a \times \frac{3}{2}a \times \sin 120^\circ = \frac{3}{2}a^2 \times \frac{1}{2} = \frac{3}{4}a^2 = 24 \to a^2 = 32$

$\to a = 4\sqrt{2}$ ، $b = \frac{3}{2} \times 4\sqrt{2} = 6\sqrt{2}$

$P_{\square} = 4\sqrt{2} + 4\sqrt{2} + 6\sqrt{2} + 6\sqrt{2} = 20\sqrt{2}$

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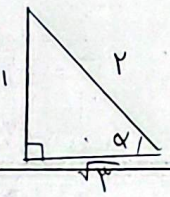
$S_{ABC} = \frac{5 \times 7 \times \sin\hat{A}}{2}$

$S_{AED} = \frac{4 \times 7 \times \sin\hat{A}}{2}$

$\ominus \to = \frac{7 \times \sin\hat{A}}{2} = 17.5 \to \sin\hat{A} = \frac{1}{2}$



$\tan\hat{A} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

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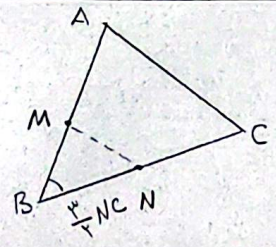

$\frac{\frac{5}{2} NC \times AB \times \frac{\sin\hat{B}}{2}}{\frac{3}{5} NC \times MB \times \frac{\sin\hat{B}}{2}} = 3 \to 5AB = 9MB$

$\to AB = \frac{9}{5}MB$

$\to MB + AM = \frac{9}{5}MB$

$\to AM = \frac{4}{5}MB$

$\frac{MB}{AM} = \frac{5}{4}$

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$\frac{1}{\sqrt{\cos^2\alpha}} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|} \to \frac{1-1-\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \to \frac{\sin\alpha}{|\cos\alpha|} = \frac{-\sin\alpha}{\cos\alpha}$

$\to \cos\alpha < 0 \to \frac{\pi}{2} < \alpha < \pi$

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\cot\alpha} = -\tan\alpha = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow \sin\alpha < 0 \to \pi < \alpha < \frac{3\pi}{2}$

α در ناحیه سوم قرار دارد. (انتهای کمان α) ← انتگرال

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