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

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الف) $\tan(2\pi+\frac{3\pi}{4})+\sin(3\pi+\frac{3\pi}{4})\times\cos(3\pi+\frac{\pi}{4}) \Rightarrow \tan\frac{3\pi}{4}+\sin\frac{3\pi}{4}\times\cos\frac{\pi}{4}$

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

ب) $\tan(2\pi+\frac{5\pi}{4})\times\sin(2\pi+\frac{3\pi}{2})+\cos(2\pi+\frac{\pi}{2}) \Rightarrow \tan\frac{5\pi}{4}\times\sin\frac{3\pi}{2}+\cos\frac{\pi}{2}$

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

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$\frac{3\cos x-\sin x}{\cos x+\sin x} \rightarrow \cot x=4 \rightarrow \cos=4k,\ \sin=k$

$\rightarrow \frac{12k-k}{4k+k}=\boxed{\frac{11}{5}}$

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$\sin^2\alpha+\cos^2\alpha=1 \xrightarrow{\sin\alpha=2\cos\alpha} (2\cos\alpha)^2+\cos^2\alpha=1 \rightarrow 5\cos^2\alpha=1 \rightarrow \cos^2\alpha=\frac{1}{5}$

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

α در ناحیه سوم

$\cos\alpha<0$ پس

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الف) $\cos^2\alpha=1-\sin^2\alpha \rightarrow \cos^2\alpha=\frac{100}{100}-\frac{2}{100}=\frac{98}{100} \rightarrow \cos\alpha=\frac{-\sqrt{98}}{10}$

$\cos(\frac{11\pi}{2}+\alpha)=(\cos\frac{11\pi}{4}\times\cos\alpha)-(\sin\frac{11\pi}{4}\times\sin\alpha)=(\frac{-\sqrt{2}}{2}\times\frac{-\sqrt{98}}{10})-(\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{10})$

$\frac{14\sqrt{2}}{20}-\frac{2}{20}=\frac{12}{20}=\boxed{0.6}$

ب) $1+\tan^2\alpha=\frac{1}{\cos^2\alpha} \rightarrow \frac{49}{25}+\frac{1}{25}=\frac{1}{\cos^2\alpha} \rightarrow \cos\alpha=\frac{5}{\sqrt{50}}$ ، $\sin^2\alpha=1-\cos^2\alpha=\frac{50}{50}-\frac{25}{50}=\frac{1}{50} \rightarrow \sin\alpha=\frac{1}{\sqrt{50}}$

$\sin(\frac{13\pi}{4}+\alpha)=(\sin\frac{13\pi}{4}\times\cos\alpha)+(\sin\alpha\times\cos\frac{13\pi}{4})=(\frac{\sqrt{2}}{2}\times\frac{5}{5\sqrt{2}})+(\frac{\sqrt{2}}{2}\times\frac{1}{5\sqrt{2}})$

$\frac{-5}{10}+\frac{-1}{10}=\boxed{-0.6}$

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$\sin^2\alpha+\underbrace{\cos^2\alpha+\sin^2\alpha}_{1}=\frac{5}{4} \rightarrow \sin^2\alpha=\frac{1}{4} \rightarrow \cos^2\alpha=1-\sin^2\alpha=\frac{3}{4}$

$\tan^2\alpha=\frac{\sin^2\alpha}{\cos^2\alpha}=\frac{\frac{1}{4}}{\frac{3}{4}}=\boxed{\frac{1}{3}}$

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$\frac{1}{2} \times 4^2 \times \sin\alpha = 4\sqrt{2} \Rightarrow \sin\alpha = \frac{4\sqrt{2}}{16} = \frac{\sqrt{2}}{4} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\Rightarrow \alpha_{max} = 120^\circ , \alpha_{min} = 45^\circ \Rightarrow \frac{120}{45} = \boxed{\frac{8}{3}}$

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$\frac{1}{2} \times \frac{1}{2} \times 2\pi \times r \times \frac{1}{2} = 6\pi \Rightarrow \pi r^2 = 24\pi \Rightarrow r^2 = 18 \Rightarrow r = 3\sqrt{2}$

$P = 2\left(\underbrace{3(3\sqrt{2}) + 3(3\sqrt{2})}_{18\sqrt{2}}\right) = \boxed{36\sqrt{2}}$

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$S_1 = S_{\hat{ABC}} = \frac{1}{2} \times AB \times AC \times \sin\hat{A} = \frac{1}{2} \times 5 \times 7 \times \sin\hat{A} = \frac{35}{2}\sin\hat{A}$

$S_2 = S_{\hat{ADE}} = \frac{1}{2} \times AD \times AE \times \sin A = \frac{1}{2} \times 7 \times 8 \times \sin\hat{A} = \frac{28}{2}\sin\hat{A}$

$S_1 - S_2 = 17.5 \Rightarrow \frac{7}{2}\sin A = \frac{7}{2} \Rightarrow \sin\hat{A} = \frac{1}{2} \Rightarrow \hat{A} = 30^\circ \Rightarrow \tan 30^\circ = \boxed{\frac{\sqrt{3}}{3}}$

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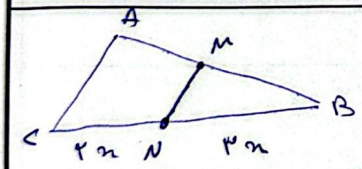

$3BN = 3NC \Rightarrow BN = \frac{3}{2}NC$

$\frac{S_{\hat{ABC}}}{S_{\hat{NBM}}} = 3 \Rightarrow \frac{\frac{1}{2} \times AB \times 5m \times \sin\hat{A}}{\frac{1}{2} \times BM \times 3x \times \sin\hat{A}} = 3$

$\Rightarrow \frac{AB}{BM} = \frac{9}{3}$ ($\overline{AM} + \overline{BM}$) $\Rightarrow 9\overline{BM} = 5\overline{AM} + 5\overline{BM} \Rightarrow 4\overline{BM} = 5\overline{AM} \Rightarrow \frac{BM}{AM} = \boxed{\frac{5}{4}}$

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

$\Rightarrow \cos\alpha < 0 \Rightarrow \alpha$ در ناحیه دوم یا سوم

$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-1}{\cot\alpha} \Rightarrow \frac{|\sin\alpha|}{\cos\alpha} = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow |\sin\alpha| = -\sin\alpha \Rightarrow \alpha$ در ناحیه سوم یا چهارم

$\Rightarrow$ پس α در ناحیه $\boxed{\text{سوم}}$ قرار دارد.