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

۱

الف) $\tan(11\pi + \frac{13\pi}{4}) + (\sin(13\pi + \frac{13\pi}{4}))(\cos(11\pi + \frac{\pi}{4}))$

$\tan(\frac{13\pi}{4}) + (-\sin\frac{13\pi}{4})(-\cos\frac{\pi}{4})$

$-1 \quad -1 + \frac{-\sqrt{2}}{2} \times \frac{-\sqrt{2}}{2} = -1 + \frac{1}{2} = -\frac{1}{2}$

ب) $\tan(12\pi + \frac{9\pi}{4}) * \sin(13\pi + \frac{2\pi}{4}) + \cos(13\pi + \frac{\pi}{4})$

$\tan(\frac{9\pi}{4}) * (-\sin\frac{2\pi}{4}) + (-\cos\frac{\pi}{4}) = 0$

$(\frac{-\sqrt{2}}{2} \quad -\frac{\sqrt{2}}{2}) \to +\frac{2}{4} \quad -\frac{1}{2}$

$+\frac{1}{2}$

۲

$$\frac{\frac{3\cos\alpha}{\sin\alpha} - \frac{\sin\alpha}{\sin\alpha}}{\frac{\cos\alpha}{\sin\alpha} + \frac{\sin\alpha}{\sin\alpha}} = \frac{3\cot\alpha - 1}{\cot\alpha + 1} = \frac{11}{5}$$

۳

$\sin^2\alpha = 4\cos^2\alpha$

$1 - \cos^2\alpha = 4\cos^2\alpha$

$1 = 5\cos^2\alpha$

$\cos^2\alpha = \frac{1}{5} \quad \cos\alpha = \frac{\pm 1}{\sqrt{5}} = \pm\frac{\sqrt{5}}{5}$ ربع دوم $\Rightarrow -\frac{\sqrt{5}}{5}$

۴

الف) $\cos(2\pi + \frac{3\pi}{4} + \alpha)$

$\cos(\frac{3\pi}{4} + \alpha)$

$\cos(\alpha + \beta) = \cos\alpha\cos\beta - \sin\alpha\sin\beta$

$(\cos\frac{3\pi}{4})(\cos\alpha) - (\sin\alpha)(\sin\frac{3\pi}{4})$

$(\frac{-\sqrt{2}}{2} \times \frac{-\sqrt{98}}{10}) \to \frac{\sqrt{98}}{10} \quad (\frac{\sqrt{2}}{10} \times \frac{\sqrt{2}}{2}) \to \frac{2}{20} = \frac{1}{10}$

$= \frac{7}{10} - \frac{1}{10} = \frac{6}{10} = \frac{3}{5}$

$\cos^2\alpha = 1 - \sin^2\alpha$

$\cos^2\alpha = 1 - \frac{2}{100} \quad \frac{98}{100}$

$\Rightarrow \cos\alpha = \pm\frac{\sqrt{98}}{10}$ ربع دوم $\Rightarrow -\frac{\sqrt{98}}{10}$

$= -\frac{7\sqrt{2}}{10}$

+ تست ب در پایین صفحه

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$2\sin^2\alpha + 1 - \sin^2\alpha = \frac{4}{3} \quad \sin^2\alpha = \frac{1}{3}$

$2(1 - \cos^2\alpha) + \cos^2\alpha = \frac{4}{3}$

$2 - 2\cos^2\alpha + \cos^2\alpha = \frac{4}{3}$

$-\cos^2\alpha = \frac{4}{3} - \frac{6}{3} = -\frac{2}{3} \quad \cos^2\alpha = \frac{2}{3}$

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

۴) ب: $\tan^2\alpha + 1 = \frac{1}{\cos^2\alpha} = \frac{۵۰}{۴۹}$ $\quad \cos^2\alpha = \frac{۴۹}{۵۰}$ $\quad \cos\alpha = \frac{۷\sqrt{۲}}{۱۰\sqrt{۲}} = \frac{۷\sqrt{۲}}{۱۰}$

$\sin^2\alpha = 1 - \cos^2\alpha \Rightarrow \sin^2\alpha = \frac{۱}{۵۰} \rightarrow \sin\alpha = \frac{۱}{۵\sqrt{۲}}\frac{\sqrt{۲}}{۱۰}$

$\sin\left(۲\pi + \frac{۵\pi}{۴} + \alpha\right) = \sin\left(\frac{۵\pi}{۴} + \alpha\right)$

$\sin(\alpha+\beta) = \sin\alpha\cos\beta + \sin\beta\cos\alpha$

$\left(\frac{-\sqrt{۲}}{۲} \times \frac{۷\sqrt{۲}}{۱۰}\right) + \left(\frac{\sqrt{۲}}{۱۰} \times \frac{-\sqrt{۲}}{۲}\right) = \left(\frac{-۱۴}{۲۰}\right) + \left(\frac{-۲}{۲۰}\right) = \frac{-۱۶}{۲۰} = \frac{-۴}{۵}$

$\frac{1}{2} \times 6 \times 6\sqrt{2} \times \sin\alpha = 18$ $\quad \sin\alpha = \frac{9\sqrt{2}}{\frac{1}{2}\times 6\sqrt{2}\times 6\sqrt{2}} = \frac{18\sqrt{2}}{72} = \frac{\sqrt{2}}{2} \Rightarrow \alpha = 135^\circ = \frac{3\pi}{4}$ $\quad \alpha = 45^\circ = \frac{\pi}{4}$

$\frac{\frac{3\pi}{4}}{\frac{\pi}{4}} = 3$ ۶

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$4k \times 3k \times \sin 30^\circ = 36$

$12k^2 = 36 \quad k^2 = 18 \quad k = \pm 3\sqrt{2}$ (طول ضلع مثبت)

$4 \times 3\sqrt{2} = 9\sqrt{2}$

$3 \times 3\sqrt{2} = 9\sqrt{2}$ $\quad 2(9\sqrt{2} + 9\sqrt{2}) = 36\sqrt{2}$

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$\left(\frac{1}{2} \times 7 \times 5 \times \sin A\right) - \left(\frac{1}{2} \times 7 \times 4^2 \times \sin A\right)$

$\frac{35}{2}\sin A - 14\sin A = \frac{7}{2}\sin A = 17.5 \quad \sin A = \frac{1}{2} \quad A < \begin{matrix} 30 \checkmark \\ 150 \end{matrix}$ حاده

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

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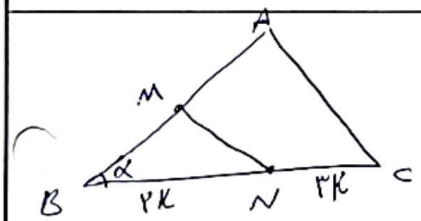

$\frac{S_{ABC}}{S_{BMN}} = 3 = \frac{\frac{1}{2} \times AB \times BC \times \sin\alpha}{\frac{1}{2} \times BM \times BN \times \sin\alpha}$ $\quad 3 = \frac{5AB}{3BM}$

$AB = \frac{9}{5}BM$

$AB = AM + BM = \frac{9}{5}BM$

$AM = \frac{9}{5}BM - BM = \frac{4}{5}BM$

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

$BN = 3k$

$CN = 3k$

$BC = 5k$

$S_{BMN} = \frac{1}{2} \times BM \times BN \times \sin\alpha$

$S_{ABC} = \frac{1}{2} \times AB \times BC \times \sin\alpha$

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

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

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

$\begin{cases} \cos\alpha < 0 \\ \sin\alpha < 0 \end{cases} \Rightarrow$ ربع سوم