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

۱

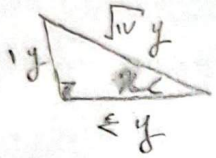
الف) $\tan\frac{11\pi}{4} + \sin\frac{13\pi}{4}\cdot\cos\frac{15\pi}{4} = -1 - \frac{\sqrt{2}}{2}\times\frac{-\sqrt{2}}{2} = -1+\frac{1}{2} = -\frac{1}{2}$

$\tan\frac{3\pi}{4}$ $\sin\frac{7\pi}{4}$ $\cos\frac{5\pi}{4}$

ب) $\tan\frac{17\pi}{4}\cdot\sin\frac{11\pi}{3} + \cos\frac{10\pi}{4} = -\sqrt{3}\cdot\frac{-\sqrt{3}}{2} - \frac{1}{2} = \frac{3}{2} - \frac{1}{2} = 1$

$\tan\frac{5\pi}{4}$ $\sin\frac{5\pi}{3}$ $\cos\frac{5\pi}{2}$

۲



$\Rightarrow \cos x = \frac{4y}{\sqrt{17}y}$ $\sin x = \frac{1y}{\sqrt{17}y}$

$\Rightarrow \frac{3\cos x - \sin x}{\cos x + \sin x} = \frac{\frac{12-1}{\sqrt{17}}}{\frac{4+1}{\sqrt{17}}} = \frac{11}{5}$

۳

$\sin^2\alpha + \cos^2\alpha = 1$, $\sin\alpha = 2\cos\alpha$

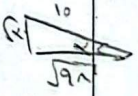
$\Rightarrow (2\cos\alpha)^2 + \cos^2 = 1 \Rightarrow 5\cos^2 = 1 \Rightarrow \cos^2 = \frac{1}{5}$

$\Rightarrow \cos = \frac{\pm 1}{\sqrt{5}}$ چون $\cos = \frac{-1}{\sqrt{5}}$

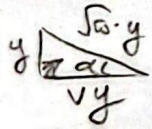
۴

$\cos\left(\frac{11\pi}{4}+\alpha\right) = \cos\frac{8\pi}{4}\cdot\cos\alpha - \sin\frac{8\pi}{4}\times\sin\alpha$

$\Rightarrow -\frac{\sqrt{2}}{2}\cdot\frac{-\sqrt{98}}{10} = \frac{\sqrt{196}}{20}$ $-\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{10} = -0.1 \Rightarrow \frac{\sqrt{196}}{20} - 0.1 = \frac{14-2}{20} = \frac{12}{20} = \frac{3}{5}$



$\sin\left(\frac{15\pi}{4}+\alpha\right) = \sin\frac{7\pi}{4}\cdot\cos\alpha + \cos\frac{7\pi}{4}\cdot\sin\alpha$



$\Rightarrow \cos\alpha = \frac{7}{\sqrt{50}}$ $\Rightarrow \sin\alpha = \frac{1}{\sqrt{50}}$

$\Rightarrow -\frac{\sqrt{2}}{2}\cdot\frac{7}{\sqrt{50}} - \frac{\sqrt{2}}{2}\cdot\frac{1}{\sqrt{50}} = \frac{-7}{10} + \frac{1}{10} = \frac{-6}{10}$

۵

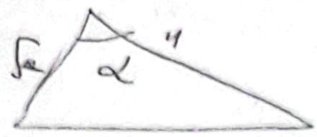
$2\sin^2 x + \cos^2 x = \frac{3}{4}$

$\sin^2 x + \cos^2 x = 1$

$\sin^2 x = \frac{1}{4}$

$\cos^2 x = \frac{3}{4}$

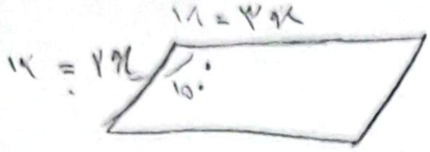
$\tan^2 = \frac{\sin^2}{\cos^2} = \frac{\frac{1}{4}}{\frac{3}{4}} = \frac{1}{3}$,



$S_{مثلث} = ۴ \times \frac{1}{۲} \times \sqrt{۳} \times \sin\alpha = ۳,۵$

$\Rightarrow \sin\alpha = \frac{\frac{\alpha^۲}{۲}}{۲\sqrt{۳}} = \frac{۳}{۲\sqrt{۳}} = \frac{\sqrt{۳}}{۲}$ ۶

$= \left|(\min\alpha = ۶۰^\circ) - (\max\alpha = ۱۲۰^\circ)\right| = ۶۰^\circ$



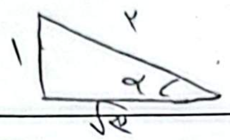
$\frac{۲x \times ۳x \times \frac{1}{۲}}{۲} = ۵۴$

$\Rightarrow \frac{۳}{۲} x^۲ = ۵۴ \Rightarrow x^۲ = ۳۶$ ، $x = -۶$ غ ق ق ، $x = +۶$ ✓ ۷

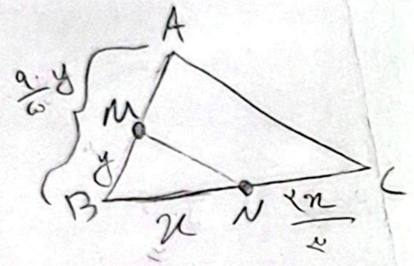
$\Rightarrow P = ۲(۱۸ + ۱۲) = ۶۰$ ✓

$S_{ABC} = \frac{۵ \times ۷ \times \sin\alpha}{۲} = \frac{۳۵}{۲}\sin\alpha$ ، $S_{ADE} = \frac{۴ \times ۷ \times \sin\alpha}{۲} = ۱۴\sin\alpha$ ۸

$\Rightarrow \frac{۳۵\sin\alpha - ۲۸\sin\alpha}{۲} = ۱,۷۵ \Rightarrow ۳,۵\sin\alpha = ۱,۷۵ \Rightarrow \sin\alpha = \frac{1}{۲}$

$\Rightarrow$ 

$\Rightarrow \tan\alpha = \frac{1}{\sqrt{۳}}$



$۲\overline{BN} = ۳\overline{NC} \Rightarrow NC = \frac{۲}{۳}BN$

$\frac{\overline{AB} \times \overline{BC} \times \sin B}{۲} = ۳ \times \frac{MB \cdot BN \cdot \sin B}{۲}$ ۹

$\overline{AB} \times \frac{۵x}{۳} = MB \cdot ۳x$

$\frac{AB}{MB} = \frac{۳x}{\frac{۵x}{۳}} = \frac{۹}{۵} \Rightarrow ۵AB = ۹MB \Rightarrow AB = \frac{۹}{۵}MB \Rightarrow AB = \frac{۹}{۵}y ,\ BM = y \Rightarrow AM = \frac{۴}{۵}y \Rightarrow \frac{BM}{AM} = \frac{y}{\frac{۴}{۵}y} = \frac{۵}{۴}$ ✓

$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-1}{\cot\alpha}$ (crossed out) $-\tan$ ، $\frac{1}{\sqrt{\cos^۲\alpha}} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|}$

$\frac{1}{|\cos\alpha|} - \frac{\sin}{\cos} = \frac{1+\sin\alpha}{|\cos|}$ ۱۰

$\frac{|\sin\alpha|}{\cos\alpha}$: $\sin < 0$ ، $-\tan$ ✓ ؛ $\sin > 0$ ، $= \tan$ غ ق ق

$\rightarrow \cos > 0 \Rightarrow \frac{1-\sin}{|\cos|}$

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

$= \frac{1+\sin}{-\cos} = \frac{1+\sin}{|\cos|}$ ✓ $\Rightarrow$ ناحیه سوم