نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۰ ... کلاس ...

۱۷

۱) $(-1)+\left(\frac{-\sqrt{۲}}{۲}\right)\times\left(\frac{-\sqrt{۲}}{۲}\right)=\frac{-۱}{۲}$ ✓

ب) $\frac{۱}{-۴}\times\frac{-\sqrt{۳}}{۲}+\left(\frac{-۱}{۲}\right)=۰$ ✓

۲) $\frac{\frac{۴}{\sqrt{۱۷}}-\frac{۱}{\sqrt{۱۷}}}{\frac{۴}{\sqrt{۱۷}}+\frac{۱}{\sqrt{۱۷}}}=\frac{\frac{۳}{\sqrt{۱۷}}}{\frac{۵}{\sqrt{۱۷}}}=\frac{۳}{۵}$ ✓

۳) $\frac{\sin\alpha}{\cos\alpha}=۲\Rightarrow\tan\alpha=۲\Rightarrow$ ۲، $\sqrt{۵}$، ۱

$\Rightarrow\cos\alpha=\frac{۱}{\sqrt{۵}}$ (چون در ربع سوم است) $\frac{-۱}{\sqrt{۵}}$ ✓

۴) $۲(۱-\cos^۲\alpha)+\cos^۲\alpha=\frac{۴}{۳}\Rightarrow۲-۲\cos^۲\alpha+\cos^۲\alpha=\frac{۴}{۳}$

$\Rightarrow۲-\cos^۲\alpha=\frac{۴}{۳}\Rightarrow\cos^۲\alpha=\frac{۲}{۳}\Rightarrow\sin^۲\alpha=۱-\cos^۲\alpha$

$=۱-\frac{۲}{۳}=\frac{۱}{۳}\Rightarrow\tan^۲\alpha=\frac{\frac{۱}{۳}}{\frac{۲}{۳}}=\frac{۱}{۲}$ ✓ جواب سوال ۵

۶) $\sin^۲\alpha=\frac{۱}{۱۰۰}=\frac{۱}{۱۰۰}\Rightarrow\cos^۲\alpha=۱-\frac{۱}{۱۰۰}=\frac{۹۹}{۱۰۰}\Rightarrow\cos\alpha=\frac{-\sqrt{۹۹}}{۱۰۰}$

$\Rightarrow\frac{-\sqrt{۲}}{۱۰}=\cos(\alpha+\frac{۱۱\pi}{۱۲})=\cos(\alpha+\frac{۳\pi}{۴})=\cos(\alpha+\theta)=$

$\cos\alpha\cos\theta-\sin\alpha\sin\theta=\cos\frac{۳\pi}{۴}=\frac{-\sqrt{۲}}{۱۰}\times\frac{-\sqrt{۲}}{۲}-\frac{\sqrt{۲}}{۱۰}\times\frac{\sqrt{۲}}{۲}$

$\Rightarrow\left(\frac{۳}{۵}\right)$ ✓

حل سوال ۴

$S_{ABC} = \frac{1}{2} \times 4\sqrt{3} \times 4 \times \sin\alpha \Rightarrow 8\sqrt{3}\sin\alpha = 4\sqrt{3} \Rightarrow \sin\alpha = \frac{\sqrt{3}}{2}$

$\Rightarrow \alpha = 60^\circ$ or 120°

$\Rightarrow \frac{120}{60} = 2$ ✓

$S = ab\sin\theta \quad a = 4k \quad b = 3k$

$\Rightarrow 24 = 4k \times 3k \times \sin 120^\circ \Rightarrow 24 = 6k^2 \times \frac{1}{2} \Rightarrow k^2 = 8$

$\Rightarrow k = \sqrt{8} = 2\sqrt{2} \Rightarrow a = 4k = 8\sqrt{2}$, $b = 3k = 6\sqrt{2}$

$\Rightarrow 2(8\sqrt{2} + 6\sqrt{2}) = 28\sqrt{2}$ ✓

$S_{ABC} = \frac{1}{2} \times V \times 5 \times \sin\hat{A}$

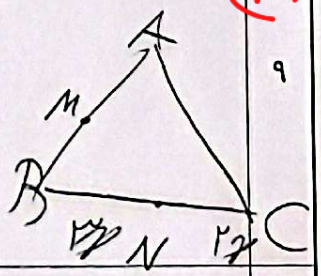
$S_{ADE} = \frac{1}{2} \times 4 \times V \times \sin\hat{A}$

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

$S_{ABC} - S_{ADE} = \frac{V}{4} \rightarrow \sin\hat{A} = \frac{1}{2} \rightarrow \hat{A} = \frac{\pi}{6}$

$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{BN}{BC} = \frac{1}{3}$

$\Rightarrow \frac{BM}{AB} = \frac{\alpha}{9} \Rightarrow \frac{BM}{AB} = \frac{6}{4} = 1.6\alpha$ ✓



$\sin\alpha > 0 \Rightarrow \frac{\sin}{\cos} = \frac{-\sin}{\cos} \times \Rightarrow \sin\alpha < 0$.

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

$\sin\alpha = \frac{-1}{2}$

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

$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|} \rightarrow -\frac{\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \rightarrow \cos\alpha < 0$

جواب قسمت ب سوال ۴ -

$\tan\alpha = \frac{1}{3} \Rightarrow$ وتر $= \sqrt{10} \Rightarrow \cos\alpha = \frac{3}{\sqrt{10}}$ ، $\sin\alpha = \frac{1}{\sqrt{10}}$

$\sin\left(\frac{13\pi}{4} + \alpha\right) = \sin\left(\pi + \frac{\pi}{4} + \alpha\right) \Rightarrow \sin\left(\frac{13\pi}{4} + \alpha\right) = -\sin\left(\frac{\pi}{4} + \alpha\right)$

$\sin(A+B) = \sin A\cos B + \cos A \sin B \Rightarrow$

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

$\sin\left(\frac{13\pi}{4} + \alpha\right) = \frac{-\sqrt{2}}{2}(\cos\alpha + \sin\alpha) \Rightarrow \cos\alpha + \sin\alpha \Rightarrow$

$\frac{3}{\sqrt{10}} + \frac{1}{\sqrt{10}} = \frac{4}{\sqrt{10}} = \frac{4}{3\sqrt{2}} \Rightarrow \sin\left(\frac{13\pi}{4} + \alpha\right) = \frac{-\sqrt{2}}{2} \times \frac{4}{3\sqrt{2}} =$

$\frac{-4}{10} = \frac{2}{3}$ ✓

+ ۲