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

۱

الف) $\tan\frac{11\pi}{6}+\sin\frac{15\pi}{6}\cos\frac{16\pi}{6}=\tan\left(2\pi+\frac{\pi}{6}\right)+\sin\left(2\pi+\frac{3\pi}{6}\right)\cos\left(2\pi+\frac{5\pi}{6}\right)$

$=-1+\left(\frac{-\sqrt{3}}{2}\right)\left(-\frac{\sqrt{3}}{2}\right)=-1+\frac{1}{4}=\boxed{-0/75}$ گزینه ۲

ب) $\tan\frac{17\pi}{4}\sin\frac{11\pi}{3}+\cos\frac{10\pi}{3}=\tan\left(2\pi+\frac{5\pi}{4}\right)\sin\left(2\pi+\frac{5\pi}{3}\right)+\cos\left(2\pi+\frac{4\pi}{6}\right)$

$=\left(\frac{-\sqrt{3}}{3}\right)\times\left(-\frac{\sqrt{3}}{2}\right)+\left(-\frac{1}{2}\right)=\frac{1}{2}-\frac{1}{2}=\boxed{0}$ گزینه ۱

۲

$\cot x=\frac{1}{4}\longrightarrow\frac{\cos x}{\sin x}=\frac{1}{4}$

$\frac{3\cos x-\sin x}{\cos x+\sin x}=\frac{3(4y)-y}{4y+y}=\frac{11y}{5y}=\boxed{\frac{11}{5}}$ گزینه ۴

۳

$\sin^2\alpha+\cos^2\alpha=1\longrightarrow(2\cos\alpha)^2+\cos^2\alpha=1$

$\longrightarrow 4\cos^2\alpha+\cos^2\alpha=1\longrightarrow 5\cos^2\alpha=1\longrightarrow\cos^2\alpha=\frac{1}{5}$ گزینه ۴

$\longrightarrow\cos\alpha=\pm\frac{1}{\sqrt{5}}=\pm\frac{\sqrt{5}}{5}\xrightarrow[\sin\alpha<0]{\cos\alpha<0}\boxed{\cos\alpha=-\frac{\sqrt{5}}{5}}$

۴

$\cos\left(\frac{11\pi}{6}+\alpha\right)=\cos\left(\frac{3\pi}{6}+\alpha\right)=\cos\left(\frac{3\pi}{6}\right)\cos\alpha-\sin\left(\frac{3\pi}{6}\right)\sin\alpha$

$\cos\alpha=-\sqrt{1-\frac{3}{100}}=-\sqrt{\frac{91}{100}}=-\frac{\sqrt{91}}{10}=\frac{-\sqrt{7}\sqrt{13}}{10}\longrightarrow\left(\frac{\pm\sqrt{7}}{7}\times\frac{\sqrt{7}\sqrt{13}}{10}\right)-\left(\frac{\sqrt{7}}{7}\times\frac{\sqrt{7}}{10}\right)=\pm\frac{\sqrt{13}}{10}-\frac{1}{10}=\boxed{0/9}$ گزینه ۴

$\tan\alpha=\frac{1}{\sqrt{7}}\longrightarrow\sin^2\alpha+\frac{1}{7}\sin^2\alpha=1\longrightarrow\sin\alpha=\sqrt{\frac{1}{10}}=\frac{1}{5\sqrt{2}}=\frac{\sqrt{2}}{10}\longrightarrow\cos\alpha=\frac{\sqrt{98}}{10}$

$\sin\left(\frac{17\pi}{6}+\alpha\right)=\sin\left(\frac{5\pi}{6}+\alpha\right)=\sin\left(\frac{5\pi}{6}\right)\cos\alpha+\cos\left(\frac{5\pi}{6}\right)\sin\alpha=\left(\frac{\sqrt{7}}{7}\times\frac{\sqrt{98}}{10}\right)+\left(-\frac{\sqrt{3}}{2}\times\frac{\sqrt{2}}{10}\right)=$

$\frac{\sqrt{7}}{10}-\frac{1}{10}=\boxed{0/18}$ گزینه ۲

۵

$2\sin^2 n+\cos^2 n=\frac{4}{5}$

$-\sin^2 n+\cos^2 n=\frac{3}{5}$

$\sin^2 n=\frac{1}{5}\longrightarrow\cos^2 n=1-\sin^2 n=1-\frac{1}{5}=\frac{4}{5}$

$\tan^2 n=\frac{\sin^2 n}{\cos^2 n}=\frac{\frac{1}{5}}{\frac{4}{5}}=\boxed{\frac{1}{4}}$ گزینه ۱

$S_{مثلث} = \frac{4\times\sqrt{3}\times\sin\alpha}{2} = 3\sqrt{3}\sin\alpha = \frac{9}{2} \to \sqrt{3}\sin\alpha = \frac{3}{2}$

$\to 2\sqrt{3}\sin\alpha = 3 \to \sin\alpha = \frac{3}{2\sqrt{3}} = \frac{\sqrt{3}}{2}$ ، $\alpha_1 = 60$ ، $\alpha_2 = 120$ ۶

$\frac{\alpha_{max}}{\alpha_{min}} = \frac{120^\circ}{60^\circ} = \boxed{2}$ [illegible] صحیح

$2x \times 3x \times \sin 30^\circ = 6x^2 \times \frac{1}{2} = 3x^2 = 54 \to x^2 = 18$

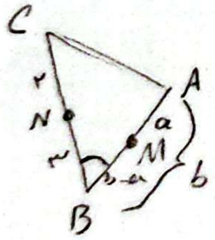
$\to x = \pm 3\sqrt{2} \to 3\sqrt{2} \to$ اضلاع: $2(3\sqrt{2}) = 6\sqrt{2}$ ، $3(3\sqrt{2}) = 9\sqrt{2}$ ۷

$2P = 2\times(6\sqrt{2}+9\sqrt{2}) = \boxed{30\sqrt{2}}$ صحیح

$S_{A\hat{B}C} - S_{A\hat{D}E} = \left(\frac{5\times7\times\sin A}{2}\right) - \left(\frac{7\times4\times\sin A}{2}\right) = 1.75$

$\to \frac{7\times\sin A}{2} = 1.75 \to 7\sin A = 3.5 \to \sin A = \frac{1}{2}$

$\hat{A}$: 30° ، 150° $\xrightarrow{\text{حاده است}}$ $\hat{A} = 30^\circ \to \boxed{\tan 30^\circ = \frac{\sqrt{3}}{3}}$ صحیح ۸



$\frac{\frac{5\times b\times\sin B}{2}}{\frac{3\times(b-a)\times\sin B}{2}} = \frac{5b}{3b-3a} = 3 \to 5b = 9b-9a$

$9a = 4b$ ۹

$\frac{9}{4}a = b$

$\frac{BM}{AM} = \frac{\frac{5}{4}a}{\frac{4}{4}a} = \boxed{\frac{5}{4}}$ صحیح

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{\sin\alpha}{\cos\alpha} \to \sin\alpha < 0$ ناحیهٔ سوم و چهارم

$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|} \to \cos\alpha < 0$ ناحیهٔ دوم و سوم ۱۰

$\Rightarrow$ **ناحیهٔ سوم** صحیح