۱۸

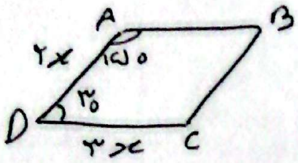
نام و نام خانوادگی ......امیرعلی خاصیی...... پاسخنامه تشریحی تکلیف شماره ۱۸... کلاس ....۱۰۸........................

شماره	پاسخ
۱	الف) $\frac{11\pi}{4} \to 135^\circ$ $\frac{15\pi}{4} \Rightarrow 315^\circ$ $\frac{13\pi}{4} \Rightarrow 225$ $\tan 135 + \sin 315 . \cos 225 = -1 + \left(-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2}\right) = -1 + \frac{2}{4} = -\frac{1}{2}$ ✓ (۲) ب) $\frac{17\pi}{6} \Rightarrow 150^\circ$ $\frac{11\pi}{3} \Rightarrow 300^\circ$ $\cos \frac{10\pi}{3} \Rightarrow 240^\circ$ $\tan 150^\circ \times \sin 300^\circ + \cos 240^\circ = \left(-\frac{\sqrt{3}}{3} \times -\frac{\sqrt{3}}{2}\right) - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = 0$ ✓
۲	$\cot = 4 \Rightarrow \frac{\cos}{\sin} = \frac{4}{1}$ $\frac{3 \times (4) - 1}{4 + 1} = \frac{11}{5}$ ✓ (۲)
۳	$\sin^2 + \cos^2 = 1 \to 4\cos^2 + \cos^2 = 1$ $\cos^2 = \frac{1}{5}$ $\sqrt{\cos^2} = \pm \frac{1}{\sqrt{5}}$ $\Leftarrow (2\cos)^2$ (۲) ناحیه سوم cos منفی است پس جواب $-\frac{1}{\sqrt{5}}$ است. ✓
۴	الف) $\frac{11\pi}{4} + \alpha \Rightarrow 2\pi + \frac{3\pi}{4} + \alpha$ $\cos\left(\frac{3\pi}{4} + \alpha\right) = +\sin\alpha$ $\sin\alpha = \frac{\sqrt{2}}{10} \to$ ناحیه ۲ sin مثبت $\cos\left(\frac{11\pi}{4} + \alpha\right) = +\frac{\sqrt{2}}{10}$ (۱) ب) $\tan\alpha + 1 = \frac{1}{\cos^2\alpha}$ $1 + \frac{1}{49} = \frac{1}{\cos^2}$ $\cos = \frac{7}{\sqrt{50}} = \frac{7\sqrt{2}}{10}$ $\sin\alpha = \frac{\sqrt{2}}{10}$ $\sin\left(\frac{5\pi}{4} + \alpha\right) = \left(-\frac{\sqrt{2}}{2}\right)\cos\alpha + \left(-\frac{\sqrt{2}}{2}\right)\sin\alpha = -\frac{\sqrt{2}}{2}(\sin\alpha + \cos\alpha) = -\frac{4}{5}$ ✓
۵	$2\sin^2 x + \cos^2 x = \frac{4}{3}$ $\sin^2 x + \cos^2 x = 1$ (۲) $\sin^2 = \frac{1}{3}$ $\cos^2 = \frac{2}{3}$ $\tan^2 = \frac{\sin^2}{\cos^2} \Rightarrow \frac{\frac{1}{3}}{\frac{2}{3}} = \frac{1}{2}$ ✓

<<سوال ۶ و ۷ را جا به جا نوشتم>>

۷ — (۲)

S متوازی الاضلاع : $\frac{1}{2}\times 2\times \sin\alpha \times AD \times DC \times 2$



$\frac{1}{2}\times\frac{1}{2}\times 2\times 3x\times 2x = 54$

$3x^2 = 54$

$x^2 = 18$

$x = 3\sqrt{2}$

محیط $= 2\times 2x + 2\times 3x = 3\sqrt{2}\times 2\times 2 + 3\sqrt{2}\times 2\times 3 = 30\sqrt{2}$ ✓

۶ — (۲)

$S = \frac{1}{2}\times\sqrt{3}\times 6\times \sin\alpha = 4{,}5$

$3\sqrt{3}\sin\alpha = 4{,}5 \Rightarrow \sin\alpha = \frac{3}{2\sqrt{3}}$

$\frac{\sqrt{3}}{2}$ < max $= 60^\circ$, min $= 120^\circ$

$\frac{120}{60} = 2$ ✓

۸ — (۲)

$S_{ABC} - S_{ADE} = 1{,}75$ $\quad \frac{1}{2}\sin A\times AB.AC - \frac{1}{2}\sin A\times AD.AE$

$\frac{1}{2}\times\sin A\times 5\times 7 = \frac{35}{2}\sin A$ $\quad / \frac{1}{2}\times\sin A\times 7\times 4 = 14\sin A$

$\frac{35}{2} - \frac{28}{2}\sin A = \frac{7}{2}\sin A = 1{,}75$ $\quad \sin A = \frac{1{,}75}{\frac{7}{2}} = \frac{1}{2}$

$A = 30^\circ$ ($\tan 30 = \frac{1}{\sqrt{3}}$) ✓

۹ — (۲)

$\frac{\frac{1}{2}\sin B\times AB.CB}{\frac{1}{2}\sin B . BM . BN} = 3$ $\quad \frac{AB\times 5NC}{BM\times 3NC} = 3$

$\frac{BM}{AM} = \frac{BM}{0{,}8BM} \Rightarrow \frac{8}{10} = \frac{5}{4}$ ✓

۱۰ — (۱)

$-\frac{1}{\cot\alpha} = -\tan\alpha$ $\quad -\frac{\tan\alpha}{1} = \frac{|\sin\alpha|}{\cos\alpha}$ → cos +, sin −

$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|}$ $\quad$ ناقص (۴)

مخرج مشترک شده $|\cos|$

~~$+ \leftarrow \cos\alpha$~~

$- \leftarrow \sin$ ✓

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

۴) الف) $\cos^2\alpha = 1 - \sin^2\alpha \rightarrow \cos^2\alpha = \frac{۹۸}{۱۰۰} \xrightarrow{\text{ربع دوم}} \cos\alpha = -\frac{۷\sqrt{۲}}{۱۰}$

$$\cos\left(\frac{۱۱\pi}{۴} + \alpha\right) = \cos\left(۳\pi + \left(-\frac{\pi}{۴} + \alpha\right)\right) = -\cos\left(\alpha - \frac{\pi}{۴}\right)$$

$$= -\left(\cos\alpha\cos\frac{\pi}{۴} + \sin\alpha\sin\frac{\pi}{۴}\right) = -\left(-\frac{۷\sqrt{۲}}{۱۰} \times \frac{\sqrt{۲}}{۲} + \frac{\sqrt{۲}}{۱۰} \times \frac{\sqrt{۲}}{۲}\right) = \frac{۳}{۵}$$