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آرمینا کبیری گروه دهم پنجشنبه ۶

۱- الف) $\tan(2\pi - \frac{\pi}{6}) + \sin(4\pi - \frac{\pi}{6})\cos(2\pi + \frac{\pi}{6})$

$= -\tan(\frac{\pi}{6}) + ((-\sin(\frac{\pi}{6})) \times (-\cos\frac{\pi}{6})) = -1 + (-\frac{\sqrt{3}}{2} \times -\frac{\sqrt{3}}{2}) = -1 + \frac{1}{2} = \frac{-1}{2}$

ب) $\tan(2\pi - \frac{\pi}{4})\sin(4\pi - \frac{\pi}{6}) + \cos(2\pi + \frac{\pi}{6}) = -\tan(\frac{\pi}{4}) \times (-\sin(\frac{\pi}{6})) + (-\cos\frac{\pi}{6})$

$= \frac{-1}{\sqrt{3}} \times \frac{-\sqrt{3}}{2} - \frac{1}{2} = 0$

Parsian

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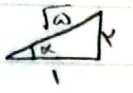
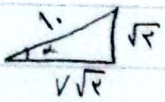
$\frac{2\cos\alpha - \sin\alpha}{\cos\alpha + \sin\alpha} \xrightarrow{\div\cos\alpha} \frac{2\tan\alpha - 1}{\tan\alpha + 1} = \frac{11}{3}$ (۲)

$\sin\alpha = 2\cos\alpha \rightarrow \tan\alpha = 2$ (۳)



$\rightarrow \cos\alpha = \frac{-1}{\sqrt{5}} = \frac{-\sqrt{5}}{5}$

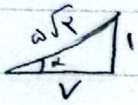
(۴ الف)



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

$= \frac{-\sqrt{2}}{2} \times \frac{-\sqrt{2}\sqrt{2}}{10} - \left(-\frac{\sqrt{2}}{2}\right) \times \frac{\sqrt{2}}{10} = \frac{7}{10} + \left(\frac{-1}{10}\right) = \frac{6}{10}$

(ب)



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

$= \frac{-\sqrt{2}}{2} \times \frac{7}{5\sqrt{2}} + \frac{1}{5\sqrt{2}} \times \frac{-\sqrt{2}}{2} = \frac{-7}{10} - \frac{1}{10} = \frac{-8}{10}$

(۵) $2\sin^2\alpha + \cos^2\alpha = 1 + \sin^2\alpha = \frac{4}{3} \rightarrow \sin^2\alpha = \frac{1}{3}$

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

(۶) $S = \frac{1}{2} \times 4 \times \sqrt{2} \times \sin\alpha = 4\sqrt{2} \rightarrow \sin\alpha = \frac{\sqrt{2}}{2}$

$\max \rightarrow \alpha = 120^\circ$
$\min \rightarrow \alpha = 45^\circ$
$\rightarrow \frac{120}{45} = \frac{8}{3}$ (۲)

(۷) $S = 2n \times 3n \times \sin 150^\circ = 9$ $\quad 2n^2 = 9 \rightarrow n^2 = 18$

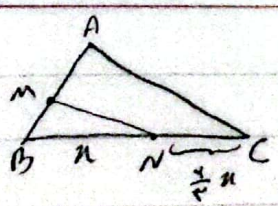
$n = 3\sqrt{2}$

$P = 4(9\sqrt{2} + 6\sqrt{2}) = 30\sqrt{2}$

(۸) $\frac{1}{2} \times 5 \times 7 \times \sin\hat{A} - \frac{1}{2} \times 6 \times 7 \times \sin\hat{A} = \frac{7}{4} \rightarrow \frac{7}{2}\sin\hat{A} = \frac{7}{4}$

$\rightarrow \sin\hat{A} = \frac{1}{2} \rightarrow \hat{A} = 30^\circ \rightarrow \tan 30^\circ = \frac{\sqrt{3}}{3}$

(۹)



$\frac{\frac{1}{2} AB \times \frac{2}{3} x \times \sin B}{\frac{1}{2} \times BM \times x \times \sin B} = 2$

$\rightarrow \frac{2AP}{BM} = 2 \rightarrow BM = \frac{3}{4} AB$

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

$\rightarrow \frac{BM}{AM} = \frac{3}{5}$ (۴)

Parsian

subject

Year Month Date ( )

$$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-\sin\alpha}{\cos\alpha} \rightarrow \sin\alpha < 0$$ (1.0)

از رابطه اول $\rightarrow \frac{1}{|\cos\alpha|} - \frac{1+\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \rightarrow \frac{-\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \rightarrow \frac{-1}{|\cos\alpha|} = \frac{1}{\cos\alpha}$

$\rightarrow \cos\alpha < 0$

$\Rightarrow$ ناحیه سوم

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