۲۵ . عالی نوشتی!

نام و نام خانوادگی ......صبا ابراهیمی...... پاسخنامه تشریحی تکلیف شماره ..۱۸.. کلاس ......دهم تجربی ۸......

۱ (۲)

الف) $\tan\frac{11\pi}{4} + \sin\frac{15\pi}{4}\cos\frac{13\pi}{4} = \tan 135^\circ + \sin 315^\circ \times \cos 225^\circ$

$= -1 + (-\frac{\sqrt{2}}{2})(-\frac{\sqrt{2}}{2}) = \frac{1}{2} - 1 = -\frac{1}{2}$

ب) $\tan\frac{17\pi}{6} \times \sin\frac{11\pi}{3} + \cos\frac{10\pi}{3} = \tan 150^\circ \times \sin 300^\circ + \cos 240^\circ$

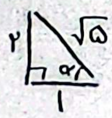
$= -\frac{\sqrt{3}}{3} \times -\frac{\sqrt{3}}{2} + (-\frac{1}{2}) = \frac{1}{2} - \frac{1}{2} = 0$

۲ (۲)

$\cot x = 4 \to \frac{\cos x}{\sin x} = \frac{4}{1}$ چون مثلث ما نسبت است می‌توانیم sin را برابر یک و Cos را برابر چهار در نظر بگیریم:

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

۳ (۲)



$\frac{\sin\alpha}{\cos\alpha} = 2$

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

۴ (۲)

الف) $\sin\alpha = \frac{\sqrt{2}}{10} \to$ (مثلث: $\sqrt{2}$، 10، $7\sqrt{2}$) $\to \cos\alpha = -\frac{7\sqrt{2}}{10}$ (ناحیه ۲)

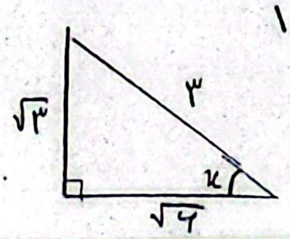
$\cos(\frac{11\pi}{4} + \alpha) = \cos(135^\circ + \alpha) = \cos 135^\circ \cos\alpha - \sin 135^\circ \sin\alpha = (-\frac{\sqrt{2}}{2} \times -\frac{7\sqrt{2}}{10}) - (\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10}) = \frac{12}{20} = \frac{3}{5}$

ب) $\tan\alpha = \frac{1}{7} \to$ (مثلث: 1، 7، $5\sqrt{2}$) $\to \sin\alpha = \frac{1}{5\sqrt{2}}$, $\cos\alpha = \frac{7}{5\sqrt{2}}$

$\sin(\frac{13\pi}{4} + \alpha) = \sin(225^\circ + \alpha) = \sin 225^\circ \cos\alpha + \cos 225^\circ \sin\alpha = (-\frac{\sqrt{2}}{2} \times \frac{7}{5\sqrt{2}}) + (-\frac{\sqrt{2}}{2} \times \frac{1}{5\sqrt{2}}) = -\frac{8}{10} = -\frac{4}{5}$

۵ (۲)

$\sin^2 x + \underbrace{\sin^2 x + \cos^2 x}_{1} = \frac{4}{3} \to \sin^2 x = \frac{1}{3} \to \sin x = \frac{\sqrt{3}}{3}$



$\Rightarrow \tan x = \frac{\sqrt{3}}{\sqrt{6}} = \frac{\sqrt{2}}{2} \xrightarrow{\tan^2 x} \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \frac{1}{2}$

$S_{\Delta} = \frac{1}{2} ab \sin\alpha = \frac{1}{2} \times 4 \times \sqrt{3} \times \sin\alpha = 6\sqrt{3} \rightarrow \sin\alpha = \frac{6\sqrt{3}}{8} = \frac{\sqrt{3}}{2}$

$\alpha = 60^\circ, 120^\circ \leftarrow$

$\frac{Max\,\alpha}{Min\,\alpha} = \frac{120^\circ}{60^\circ} = 2$ ✓

$S_{\square} = ab\sin\alpha = a \times \frac{3}{2}a \times \sin 120^\circ = \frac{3}{2}a^2 \times \frac{1}{2} = \frac{3}{4}a^2 = 48 \rightarrow a^2 = 64$

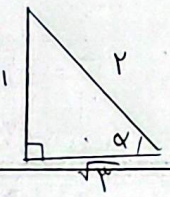
$\rightarrow a = 4\sqrt{2}\ ,\ b = \frac{3}{2} \times 4\sqrt{2} = 6\sqrt{2}$

$P_{\square} = 4\sqrt{2} + 4\sqrt{2} + 6\sqrt{2} + 6\sqrt{2} = 20\sqrt{2}$ ✓

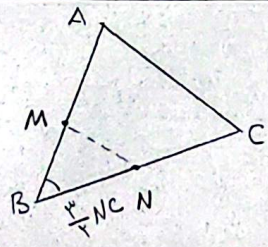
$S_{ABC} = \frac{5 \times 7 \times \sin\hat{A}}{2}$

$S_{ADE} = \frac{4 \times 7 \times \sin\hat{A}}{2}$

$\ominus \rightarrow = \frac{7 \times \sin\hat{A}}{2} = 14 \rightarrow \sin\hat{A} = \frac{4}{7}$



$\tan\hat{A} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ ✓



$\frac{\frac{5}{2}NC \times AB \times \frac{\sin\hat{B}}{2}}{\frac{3}{2}NC \times MB \times \frac{\sin\hat{B}}{2}} = 3 \rightarrow 5AB = 9MB$

$\rightarrow AB = \frac{9}{5}MB$

$\rightarrow MB + AM = \frac{9}{5}MB$

$\rightarrow AM = \frac{4}{5}MB$

$\frac{MB}{AM} = \frac{5}{4}$ ✓

$\frac{1}{\sqrt{\cos^2\alpha}} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|} \rightarrow \frac{1-1-\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \rightarrow \frac{\sin\alpha}{|\cos\alpha|} = \frac{-\sin\alpha}{\cos\alpha}$

$\rightarrow \cos\alpha < 0 \rightarrow$ α در ناحیه ۲ یا ۳

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\cot\alpha} = -\tan\alpha = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow \sin\alpha < 0 \rightarrow$ α در ناحیه ۳ یا ۴

α در ناحیه ۳ قرار دارد. (انتهای کمان α) ← اشتراک