نام و نام خانوادگی ....سهیل بهرامی.......... پاسخنامه تشریحی تکلیف شماره ....۲۶.. کلاس ....یازدهم ریاضی B۵۰۵....

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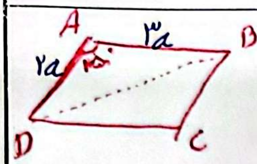

$S_{ABCD} = 2S_{A\hat{B}D} = 2\times\frac{1}{2}\times AD\times AB\times \sin\hat{A} = 2\times\frac{1}{2}\times 2a\times 3a\times\frac{1}{2} = 3a^2 = 54$

$\Rightarrow a^2 = 18 \Rightarrow a = 3\sqrt{2}$

$\left.\begin{array}{l} AD = BC \\ AB = DC \\ \hat{A} = \hat{C} = 150^\circ \end{array}\right\} \Rightarrow A\hat{B}D \cong B\hat{C}D \Rightarrow S_{A\hat{B}D} = S_{B\hat{C}D} \Rightarrow S_{ABCD} = 2S_{A\hat{B}D}$

محیط متوازی الاضلاع $= 2(2a+3a) = 10a = 30\sqrt{2}$

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$S_{A\hat{B}C} = \frac{1}{2}AB\times AC\times\sin\hat{A} = \frac{1}{2}\times 5\times 7\times\sin\hat{A} = \frac{35}{2}\sin\hat{A}$

$S_{ADE} = \frac{1}{2}AE\times AD\times\sin\hat{A} = \frac{1}{2}\times 4\times 7\times\sin\hat{A} = \frac{28}{2}\sin A$

$\Rightarrow |S_{A\hat{B}C} - S_{A\hat{D}E}| = |\frac{7}{2}\sin\hat{A}| = 1.75$

$\Rightarrow \begin{cases} \sin\hat{A} = \frac{1}{2} \Rightarrow \begin{cases} \hat{A} = 30^\circ \checkmark \\ \hat{A} = 150^\circ \text{ غ ق ق} \end{cases} \\ \sin\hat{A} = -\frac{1}{2} \Rightarrow \text{غ ق ق} \end{cases}$

$\hat{A} = 30^\circ \Rightarrow \tan\hat{A} = \frac{\sqrt{3}}{3}$

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

$\Rightarrow \frac{\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{-\cos\alpha} \Rightarrow |\cos\alpha| = -\cos\alpha \Rightarrow \cos\alpha < 0$

$\frac{|\sin\alpha|}{\cos\alpha} = -\tan\alpha = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow \sin\alpha < 0$

$\Rightarrow$ α در ناحیه سوم مثلثاتی قرار دارد

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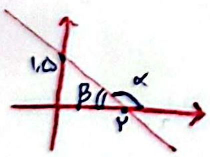

$\left.\begin{array}{l} \tan\beta = \frac{1.5}{2} = \frac{3}{4} \\ \beta = \pi - \alpha \end{array}\right\} \Rightarrow \tan(\pi-\alpha) = \frac{3}{4} \Rightarrow \tan\alpha = \frac{-3}{4}$

$\tan(\frac{\pi}{2}-\alpha) = \cot\alpha = \frac{1}{\tan\alpha} = \frac{1}{\frac{-3}{4}} = \frac{-4}{3}$

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$\frac{3\cos(\frac{3\pi}{2} - 22^\circ) - 2\sin(\pi - 22^\circ)}{\sin(\pi + 22^\circ) - \cos(\frac{3\pi}{2} + 22^\circ)} = \frac{-3\sin 22^\circ - 2\sin 22^\circ}{-\sin 22^\circ - \sin 22^\circ} = \frac{-5\sin 22^\circ}{-2\sin 22^\circ} = \frac{5}{2}$

۶

$$\frac{\sin\left(\frac{\pi}{2}+\alpha\right)-\sin(\alpha-\pi)}{|\tan^2\alpha-1|}=\frac{\cos\alpha+\sin\alpha}{|\tan^2\alpha-1|}=\frac{\frac{2}{3}-\frac{\sqrt{5}}{3}}{\left|\frac{5}{4}-1\right|}=\frac{\frac{2-\sqrt{5}}{3}}{\frac{1}{4}}=\frac{8-4\sqrt{5}}{3}$$

$\cos\alpha=\frac{2}{3}\Rightarrow\cos^2\alpha=\frac{4}{9}\Rightarrow\sin^2\alpha=1-\frac{4}{9}=\frac{5}{9}\Rightarrow\sin\alpha=\frac{\pm\sqrt{5}}{3}$ (به دلیل ناحیه) $\Rightarrow\sin\alpha=-\frac{\sqrt{5}}{3}$

$\Rightarrow\tan\alpha=\frac{\sin\alpha}{\cos\alpha}=\frac{-\frac{\sqrt{5}}{3}}{\frac{2}{3}}=-\frac{\sqrt{5}}{2}$

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$\sin\alpha=2\cos\alpha\Rightarrow\tan\alpha=2\Rightarrow 1+\tan^2\alpha=\frac{1}{\cos^2\alpha}=5\Rightarrow\cos^2\alpha=\frac{1}{5}\Rightarrow\cos\alpha=\pm\frac{\sqrt{5}}{5}$

به دلیل ناحیه سوم $\Rightarrow\cos\alpha=-\frac{\sqrt{5}}{5}$

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$2mx+(m^2-1)y=2\Rightarrow y=\frac{-2m}{m^2-1}x+\frac{2}{m^2-1}$ (شیب)

شیب خط $=\tan 60^\circ=\sqrt{3}\Rightarrow\frac{-2m}{m^2-1}=\sqrt{3}\Rightarrow\sqrt{3}m^2-\sqrt{3}=-2m\Rightarrow\sqrt{3}m^2+2m-\sqrt{3}=0$

اختلاف مقادیر $m=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{4+12}}{\sqrt{3}}=\frac{4}{\sqrt{3}}=\frac{4\sqrt{3}}{3}$

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$\tan\left(\frac{\pi}{4}-x\right)=\frac{\tan\frac{\pi}{4}-\tan x}{1+\tan\frac{\pi}{4}\times\tan x}=\frac{1-\tan x}{1+\tan x}=\frac{1-m}{2+m}\Rightarrow\frac{1-\tan x+1+\tan x}{1+\tan x}=\frac{1-m+2+m}{2+m}$

$\Rightarrow\frac{2}{1+\tan x}=\frac{3}{2+m}\Rightarrow\frac{1+\tan x}{2}=\frac{2+m}{3}\Rightarrow 1+\tan x=\frac{4+2m}{3}\Rightarrow\tan x=\frac{2m+1}{3}$

$-\frac{\pi}{4}<x<\frac{\pi}{4}\Rightarrow -1<\tan x<1\Rightarrow -1<\frac{2m+1}{3}<1$

$\Rightarrow -3<2m+1<3\Rightarrow -6<2m<2\Rightarrow -3<m<1$

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$\tan(200^\circ)\cos(210^\circ)+\tan(480^\circ)\sin(840^\circ)=\tan(200^\circ)\cos(240^\circ)+\tan(120^\circ)\sin(120^\circ)$

$=(-\sqrt{3})\left(-\frac{\sqrt{3}}{2}\right)+(-\sqrt{3})\left(\frac{\sqrt{3}}{2}\right)=\frac{3}{2}+\left(-\frac{3}{2}\right)=0$