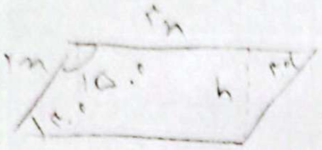
محمدامین جعفری   تکلیف ۲۶   ۱۷,۷۵   یازدهم پسر B

۱



$S = 3x \cdot h = 3x \times 2x \times \sin 30^\circ = 6x^2 \times \frac{1}{2} = 3x^2 = 54$

$\Rightarrow x^2 = 18 \Rightarrow x = \sqrt{18} = 3\sqrt{2}$ ✓   ۱,۵

محیط $= 2(2x + 3x) = 10x = 30\sqrt{2}$

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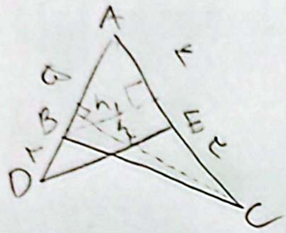
۲   ۱



$S_{ABC} - S_{ADE} = \frac{1}{2} \times 7 \times h_1 - \frac{1}{2} \times 7 \times h_2 = 3/5(h_2 - h_1)$

$= 1/75 \Rightarrow h_2 - h_1 = \frac{1}{2}$

$\left.\begin{array}{l} h_1 = \sin \hat{A} \times 5 \\ h_2 = \sin \hat{A} \times \cancel{5}\ 4 \end{array}\right\} \Rightarrow h_2 - h_1 = \sin \hat{A}(7 - 5) = 2\sin \hat{A} = \frac{1}{2}$

$\Rightarrow \sin \hat{A} = \cancel{\frac{1}{4}}$ $\cos \hat{A} = \sqrt{1 - \sin^2 \hat{A}} = \sqrt{\frac{16-1}{16}} = \frac{\sqrt{15}}{4} \longrightarrow$ چون حاده است مثبت است $\Rightarrow \tan \hat{A} = \frac{\frac{1}{4}}{\frac{\sqrt{15}}{4}} = \frac{1}{\sqrt{15}}$

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۳   ۲

$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{1}{\cot \alpha} \Rightarrow |\sin \alpha| = -\tan \alpha \times \cos \alpha = -\sin \alpha \Rightarrow \sin \alpha < 0$

$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1}{|\cos \alpha|} + \frac{\sin \alpha}{|\cos \alpha|} \Rightarrow \frac{\sin}{-\cos \alpha} = \frac{\sin}{|\cos \alpha|} \Rightarrow |\cos \alpha| = -\cos \alpha$

$\cos \alpha < 0$

$\Rightarrow$ ناحیه سوم ✓

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۴   ۳

$\frac{(0, 1/5)}{(2, 0)} \longrightarrow \tan \alpha = \frac{\Delta y}{\Delta x} = \frac{1/5 - 0}{0 - 2} = -\frac{3}{4}$

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

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۵   ۲

$= \frac{3\cos(270^\circ - 22^\circ) - 2\sin(180^\circ - 22^\circ)}{\sin(180^\circ + 22^\circ) - \cos(270^\circ + 22^\circ)} = \frac{-3\sin 22^\circ - 2\sin 22^\circ}{-\sin 22^\circ - \sin 22^\circ} = \frac{-5\sin 22^\circ}{-2\sin 22^\circ}$

$= \frac{5}{2}$ ✓

۲ ۶

$\sin\alpha=\sqrt{۱-\cos^۲\alpha}=\sqrt{۱-\frac{۴}{۹}}=\sqrt{\frac{۵}{۹}}=\frac{\sqrt{۵}}{۳}\xrightarrow[\sin\alpha<۰]{\text{ربع چهارم}}-\frac{\sqrt{۵}}{۳}$

$\text{عبارت}=\frac{\cos\alpha+\sin\alpha}{|\tan^۲\alpha-۱|}=\frac{\frac{۲}{۳}-\frac{\sqrt{۵}}{۳}}{\left|\left(\frac{-\frac{\sqrt{۵}}{۳}}{\frac{۲}{۳}}\right)^۲-۱\right|}=\frac{\frac{۲-\sqrt{۵}}{۳}}{\left|\frac{۵}{۴}-۱\right|}=\frac{\frac{۲-\sqrt{۵}}{۳}}{\frac{۱}{۴}}=\frac{۴(۲-\sqrt{۵})}{۳}$ ✓

۱,۷۵ ✓

دقت!

$\Rightarrow \sin^۲\alpha+\cos^۲\alpha=۴\cos^۲\alpha+\cos^۲\alpha=۵\cos^۲\alpha=۱\Rightarrow \cos^۲\alpha=\frac{۱}{۵}\xrightarrow{\text{ربع سوم}}-\frac{۱}{\sqrt{۵}}$

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۲ ۸

$\Rightarrow (m^۲-۱)y=-۲mx+۳\Rightarrow y=\frac{-۲m}{m^۲-۱}x+\frac{۳}{m^۲-۱}\qquad \tan۶۰^\circ=\sqrt{۳}$

$\Rightarrow \frac{-۲m}{m^۲-۱}=\sqrt{۳}\Rightarrow \sqrt{۳}m^۲+۲m-\sqrt{۳}=۰\Rightarrow m=\frac{-۲\pm\sqrt{۴-۴(-\sqrt{۳})(\sqrt{۳})}}{۲\sqrt{۳}}=\frac{-۲\pm۴}{۲\sqrt{۳}}=\begin{cases}-\sqrt{۳}\\ \frac{۱}{\sqrt{۳}}\end{cases}$

$\Rightarrow \frac{۱}{\sqrt{۳}}-(-\sqrt{۳})=\frac{\sqrt{۳}+۳\sqrt{۳}}{۳}=\frac{۴}{۳}\sqrt{۳}$ ✓

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۲ ۹

$\Rightarrow ۰<\frac{\pi}{۲}-x<\frac{\pi}{۲}\Rightarrow \tan\left(\frac{\pi}{۲}-x\right)>۰\Rightarrow \frac{۱-m}{۲+m}>۰\Rightarrow$

	-۲		۱	
$-$		$+$		$-$

$\Rightarrow m\in(-۲,۱)$ ✓

۱,۵ ۱۰

$\text{عبارت}=\tan۳۰۰^\circ\cos۲۱۰^\circ+\tan۱۲۰^\circ\sin۱۲۰^\circ=-\sqrt{۳}\times-\frac{\sqrt{۳}}{۲}+-\sqrt{۳}\times+\frac{\sqrt{۳}}{۲}$

ربع دوم!

$=+\frac{۳}{۲}+\left(-\frac{۳}{۲}\right)=\cancel{۳}\ \boxed{۰}$

-۲

$$S_{ABC} - S_{ADE} = \frac{۱}{۲} \times ۷ \times ۵ \sin \hat{A} - \frac{۱}{۲} \times ۴ \times ۷ \times \sin \hat{A} = ۱٫۷۵$$

$$\frac{۷}{۲} \sin \hat{A} = ۱٫۷۵ \longrightarrow \sin \hat{A} = \frac{۱}{۲} \xrightarrow{A = ۳۰^\circ} \tan \hat{A} = \frac{\sqrt{۳}}{۳}$$