تألیف شماره ۲۶ — چهار درسی — یازدهم هنر A

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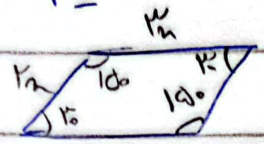
۱) $S = 54$



$360 - 2\times 150 = 60$

$\frac{60}{2} = 30 \rightarrow$ اندازه زاویه ها

$S = 2x \times 3x \times \sin 30 = 2x \times 3x \times \frac{1}{2} = 54$

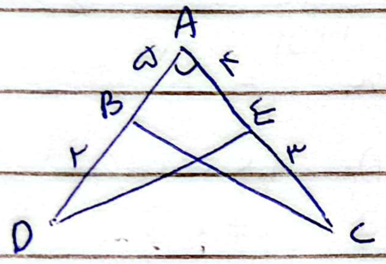
$6x^2 = 108$

$x^2 = \frac{108}{6} = \frac{54}{3} = 18$

$x = \sqrt{18} = 3\sqrt{2}$

محیط $= 10x = 3\sqrt{2}\times 10 = \boxed{30\sqrt{2}}$

۲)



$S_{ABC} = \frac{1}{2}\times 5 \times 7 \times \sin\hat{A} = \frac{35}{2}\sin\hat{A}$

$S_{ADE} = \frac{1}{2}\times 7\times 4\times \sin\hat{A} = 14\sin\hat{A}$

$\sin\hat{A}\left(\underbrace{\frac{35}{2} - 14}_{3.5}\right) = 1.75$

$\sin\hat{A} = \frac{1.75}{3.5} = \frac{1}{2}$

$\sin^2 A + \cos^2 A = 1 \rightarrow \cos^2 = 1 - \frac{1}{4} = \frac{3}{4}$

$\cos = \frac{\sqrt{3}}{2}$

$\tan A = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \boxed{\frac{\sqrt{3}}{3}}$

تاریخ: / /　　　　موضوع:

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

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

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

$$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|} \rightarrow \tan^2 < 0 \quad \cos\alpha > 0$$

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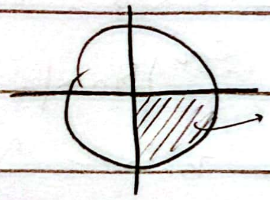
$$\frac{1-\sin\alpha}{|\cos\alpha|} = \frac{1+\sin\alpha}{|\cos\alpha|} \rightarrow \sin\alpha < 0$$

$\sin\alpha < 0$, $\cos\alpha > 0$



~~ربع چهارم~~　　در ناحیه سوم

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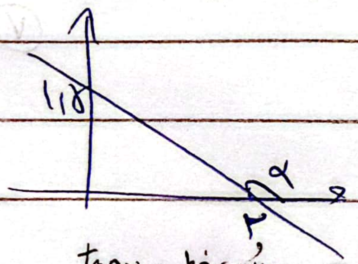
$$\tan\left(\frac{\pi}{2}-\alpha\right) = +\cot\alpha = \boxed{\frac{-4}{3}}$$



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$$\tan\alpha = \text{شیب خط} = -\frac{1,5}{2} = \frac{-3}{4} \rightarrow \cot = \frac{-4}{3}$$

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$$\frac{3\cos(\overset{270-22}{248}) - 2\sin(\overset{180-22}{158})}{\underset{180+22}{}\sin(202) - \cos(\underset{270+22}{292})} =$$

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$$\frac{-3\sin(22) - 2\sin(22)}{-\sin(22) - \sin(22)} = \frac{-5\sin(22)}{-2\sin(22)} = \boxed{\frac{5}{2} = 2,5}$$

$\cos\alpha > 0$

$\sin\alpha < 0$

(۶) $\cos\alpha = \frac{2}{3}$ ، α ناحیه چهارم

$$\frac{\sin(\frac{\pi}{2}+\alpha) - \sin(\alpha-\pi)}{|\tan^2\alpha - 1|}$$

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

$\sin^2\alpha + \cos^2\alpha = 1 \rightarrow \sin^2\alpha = 1 - \frac{4}{9} = \frac{5}{9}$

$\sin\alpha = \frac{-\sqrt{5}}{3} \xleftarrow{\text{ناحیه چهارم}} |\sin\alpha| = \frac{\sqrt{5}}{3}$

$1 + \tan^2\alpha = \frac{1}{\cos^2\alpha} \rightarrow \tan^2\alpha = \frac{9}{4} - 1 = \frac{5}{4}$

(۷) $\sin\alpha = 2\cos\alpha$ ، α ناحیه سوم

$\cos\alpha = ?$

$\sin^2\alpha + \cos^2\alpha = 1$

$4\cos^2\alpha + \cos^2\alpha = 1 \rightarrow 5\cos^2\alpha = 1$

$\cos^2\alpha = \frac{1}{5}$

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

چون در ناحیه سوم است $\cos\alpha < 0$

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

(۸)

$$2mx + (m^2-1)y = 3$$

$$(m^2-1)y = -2mx + 3$$

$$y = \frac{-2mx}{m^2-1} + \frac{3}{m^2-1}$$

$$\tan 60^\circ = \sqrt{3} = \frac{-2m}{m^2-1} \rightarrow \sqrt{3}m^2 - \sqrt{3} = -2m$$

$$\sqrt{3}m^2 + 2m - \sqrt{3} = 0$$

$$\Delta = 4 + 4\times 3 = 16 \qquad m = \frac{-2 \pm \sqrt{16}}{2\sqrt{3}} = \frac{-2 \pm 4}{2\sqrt{3}}$$

$$\begin{cases} m = \frac{2}{2\sqrt{3}} \\ m = \frac{-6}{2\sqrt{3}} \end{cases}$$

اختلاف مقادیر m $= \frac{2}{2\sqrt{3}} - \left(\frac{-6}{2\sqrt{3}}\right) = \frac{8}{2\sqrt{3}} = \boxed{\frac{4}{\sqrt{3}}}$

(۹)

$$\frac{-\pi}{3} < x < \frac{\pi}{4}$$

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

$$\times(-1) \rightarrow \frac{\pi}{3} > -x > \frac{-\pi}{4} \xrightarrow{+\frac{\pi}{4}} \frac{2\pi}{4} > \frac{\pi}{4} - x > 0$$

$$0 < \frac{\pi}{4} - x < \frac{\pi}{2}$$

$$\tan\left(\frac{\pi}{4} - x\right) > 0 \rightarrow 0 < \frac{1-m}{2+m}$$

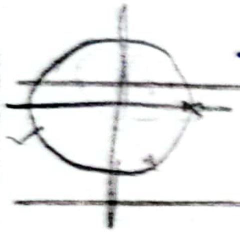
$$\rightarrow 0 < \frac{1-m}{2+m}$$

	-2		1	
$-$		$+$		$-$

$$\rightarrow m = (-2, 1)$$

موضوع: ____________ تاریخ: / /

$$\overset{}{\tan(300^\circ)}\cos(210^\circ) + \tan(\overset{360+120}{480^\circ})\sin(\overset{720+120}{840^\circ}) = \text{b}$$



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

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