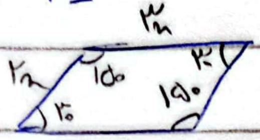
تکلیف شماره ۲۶ بهاره مرسول نازنیم قمر A

① $S = 54$



$360 - 2\times 150 = 60$

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

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

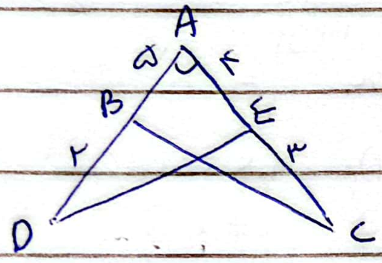
$6x^2 = 108$

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

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

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

②



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

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

$\sin\hat{A}(\underbrace{\frac{35}{2} - 14}_{3{,}5}) = 1{,}75$

$\sin\hat{A} = \frac{1{,}75}{3{,}5} = \frac{1}{2}$

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

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

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

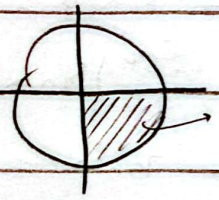
$$\frac{|\sin\alpha|}{\cos\alpha} = \frac{-1}{\cot\alpha} \Rightarrow \frac{|\sin\alpha|}{\cos\alpha} = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow \sin\alpha < 0$$ (۳)

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

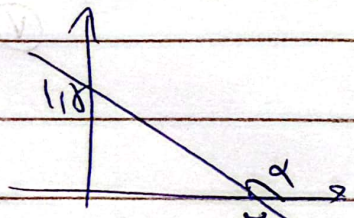
$$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{|\cos\alpha|} \rightarrow \tan\alpha < 0, \quad \cos\alpha > 0$$

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

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



$$\tan\left(\frac{\pi}{2} - \alpha\right) = +\cot\alpha = \frac{-4}{3}$$ (۴)



$$\tan\alpha = \frac{\text{ضلع مقابل}}{\text{ضلع مجاور}} = \frac{-1.5}{2} = \frac{-3}{4} \rightarrow \cot = \frac{-4}{3}$$

$$\frac{3\cos(۲۷۰-۲۲) - 2\sin(۱۸۰-۲۲)}{۱۸۰+۲۲\sin(۲۰۲) - \cos(۲۹۲+۲۷۰+۲۲)} =$$ (۵)

$$\frac{-3\sin(۲۲) - 2\sin(۲۲)}{-\sin(۲۲) - \sin(۲۲)} = \frac{-5\sin(۲۲)}{-2\sin(۲۲)} = \frac{5}{2} = 2.5$$

تاریخ: / / موضوع:

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

α در ربع چهارم ، $\cos\alpha = \frac{2}{3}$ ⑥

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

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

$$\frac{4(2-\sqrt{5})}{3}$$

$$= \frac{8-4\sqrt{5}}{3}$$

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

$|\sin\alpha| = \frac{\sqrt{5}}{3}$ ← α در ربع چهارم $\sin\alpha = \frac{-\sqrt{5}}{3}$

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

$\sin\alpha = 2\cos\alpha$ ، α در ربع سوم ⑦

$\cos\alpha = ?$

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

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

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

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

چون α در ربع سوم است $\cos\alpha < 0$

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

$2mx + (m^2-1)y = 4$ (۸)

$(m^2-1)y = -2mx + 4$

$y = \frac{-2mx}{m^2-1} + \frac{4}{m^2-1}$

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

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

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

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

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

(۹)

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

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

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

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

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

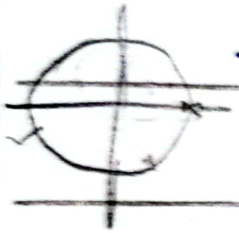
$\rightarrow 0 < \frac{1-m}{2+m}$

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

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

تاريخ: / /

موضوع:



$$\tan(300^\circ)\cos(210^\circ)+\tan(480^\circ)\sin(420^\circ)=?$$

$300^\circ+120^\circ$ $\quad$ $480^\circ+120^\circ$

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