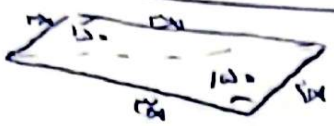
عرشیا رستمی یازدهم سپهر B تکلیف شماره ۲۶

۱- ۲-۱ شکل

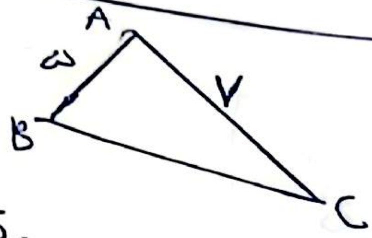


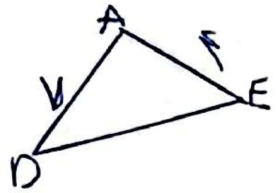
$2\times\frac{1}{2}\times\sin150^\circ\times 2x\times 3x = 54$

$\Rightarrow 3x^2 = 54 \Rightarrow x^2 = 18 \Rightarrow x = 3\sqrt{2}$

محیط متوازی الاضلاع $= 2x+3x+2x+3x = 10x = \boxed{30\sqrt{2}}$

۲-





$S_{ABC} - S_{ADE} \Rightarrow \frac{1}{2}\sin\hat{A}\times7\times5 - \frac{1}{2}\sin\hat{A}\times7\times4 = 1/75$

$\Rightarrow \frac{35}{2}\sin\hat{A} - \frac{28}{2}\sin\hat{A} = 1/75 \Rightarrow \frac{7}{2}\sin\hat{A} = 1/75$

$\Rightarrow \sin\hat{A} = \frac{1}{2} \Rightarrow \hat{A} = 30^\circ \Rightarrow \tan\hat{A} = \frac{\sin\hat{A}}{\cos\hat{A}} = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \boxed{\frac{\sqrt{3}}{3}}$

۳-

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

$\Rightarrow \cos\alpha < 0$ I

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

$\Leftarrow \alpha$ در ناحیه سوم است

۴-

$\tan(\frac{\pi}{2}-\alpha) = \cot\alpha \qquad \tan\alpha = m$ شیب خط $\Rightarrow \tan\alpha = -\frac{1/5}{2}$

$\Rightarrow \tan\alpha = -\frac{3}{4} \Rightarrow \boxed{\cot\alpha = -\frac{4}{3}}$

۵-

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

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

tan ...

$1-\cos^2\alpha=\sin^2\alpha \Rightarrow 1-\frac{4}{9}=\sin^2\alpha \Rightarrow \frac{5}{9}=\sin^2\alpha$ -٤

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

$\frac{\cos\alpha+\sin\alpha}{\left|\frac{\sin^2}{\cos^2}-1\right|} \rightarrow \frac{\frac{2}{3}-\frac{\sqrt{5}}{3}}{\frac{5}{9}-\frac{9}{9}} \rightarrow \boxed{\frac{2-\sqrt{5}}{4}}$

-٧

$\sin\alpha=2\cos\alpha \Rightarrow \sin^2\alpha=4\cos^2\alpha$

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

-٨

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

$\Rightarrow \frac{2}{m^2-1}-\frac{2m}{m^2-1}x=y \Rightarrow \frac{-2m}{m^2-1}=\tan 45^\circ$

$\Rightarrow \frac{-2m}{m^2-1}=\sqrt{2} \Rightarrow \sqrt{2}m^2+2m-\sqrt{2}=0 \Rightarrow m^2+\sqrt{2}m-2=0$

$(m+\sqrt{2})(m-1)$

$m=\frac{1}{\sqrt{2}}=\frac{\sqrt{2}}{2}$

$m=-\frac{\sqrt{2}}{\sqrt{2}} \Rightarrow m=-\sqrt{2}$

$\frac{\sqrt{2}}{2}-(\sqrt{2}) \rightarrow \boxed{\frac{m\sqrt{2}}{2}}$

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

$$-\frac{\pi}{4}<\alpha<\frac{\pi}{2} \rightarrow -\frac{\pi}{4}-\frac{\pi}{4}<\alpha-\frac{\pi}{4}<\frac{\pi}{4}-\frac{\pi}{4}$$

$$\rightarrow -\frac{\pi}{2}<\alpha-\frac{\pi}{4}<0 \Rightarrow \tan\left(\alpha-\frac{\pi}{4}\right)<0$$

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

m	$-\infty$		-2		1		$+\infty$
$m-1$	$-$	$-$	$-$	$-$	0	$+$	$+$
$m+2$	$-$	0	$+$	$+$	$+$	$+$	$+$
$\frac{m-1}{m+2}$	$+$	$\nexists$	$-$	$-$	0	$+$	$+$

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

$\tan(300)\cos(210) + \tan(360+120)\sin(270+120)$

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