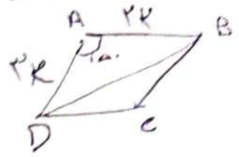
شادان کشاورزراد   تکلیف ۲۶ .   یازدهم ریاضی B

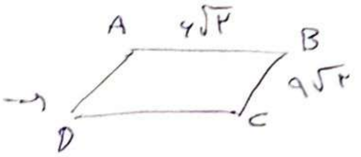
سوال ۱)



$S_{ABCD} = 54 \div 2 = 27 \to$ مساحت مثلث

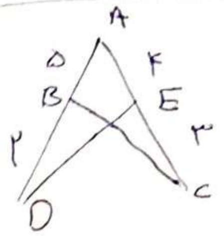
$S_\Delta = \frac{1}{2} AD \times AB \times \sin\hat{A} \Rightarrow 27 = \frac{1}{2} \times 6k^2 \sin 150 = 1.5k^2 = 27$

$k^2 = 18 \to k = 3\sqrt{2}$

$\to$ 

$P = 2(6\sqrt{2} + 9\sqrt{2}) = 30\sqrt{2}$

سوال ۲)



$S_{ABC} - S_{ADE} = 1.75$

$\tan\hat{A} = ?$

$S_\Delta = \frac{1}{2} \times 5 \times 7 \times \sin A - \frac{1}{2} \times 7 \times 4 \times \sin A = 1.75$

$S_\Delta = \frac{35}{2}\sin A - 14\sin\hat{A} = 1.75 \Rightarrow \frac{7}{4} = 3.5 \times \sin\hat{A} \to \sin\hat{A} = \frac{1}{2}$

$\hat{A} = 150$ یا 30 ← زاویه حاده

$\tan 30 = \frac{-\sqrt{3}}{3}$

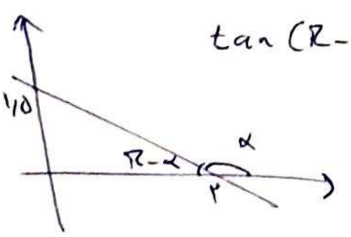
سوال ۳)

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

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

$\cos < 0$ ← ربع سوم بوده

سوال ۴)



$\tan(\pi - \alpha) = \frac{1.5}{2} \to \tan\alpha = -\frac{3}{4}$

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

سوال ۵)

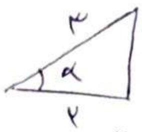
$$\frac{3\cos(248^\circ) - 2\sin(158)}{\sin(202^\circ) - \cos(292^\circ)} = \frac{3\cos(270 - 22) - 2\sin(180 - 22)}{\sin(180 + 22) - \cos(270 + 22)} = D$$

$$\frac{-3\sin 22 - 2\sin 22}{-\sin 22 - \sin 22} = \frac{-5\sin 22}{-2\sin 22} = 2.5$$

سوال ۶)

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

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

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

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

سوال ۷)

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

$5\cos^2\alpha = 1 \rightarrow \cos\alpha = \frac{1}{\sqrt{5}} \rightarrow \cos\alpha = -\frac{\sqrt{5}}{5}$ ربع سوم بودن

سوال ۸)

$\alpha = \frac{-2m}{m^2-1} \qquad \tan 60 = \sqrt{3}$

$\frac{-2m}{m^2-1} = \sqrt{3} \Rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \qquad \Delta = 4 - 4(\sqrt{3})(-\sqrt{3}) = 16 \Rightarrow m = \frac{-2\pm\sqrt{16}}{2\sqrt{3}}$

$\Rightarrow \begin{cases} m = \frac{1}{\sqrt{3}} \\ m = -\frac{3}{\sqrt{3}} \end{cases} \Rightarrow$ اختلاف $= \frac{4}{\sqrt{3}}$

سوال ۹)

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

$-\frac{\pi}{4} < x < \frac{\pi}{4} \xrightarrow{(-1)} -\frac{\pi}{4} < -x < \frac{\pi}{4} \xrightarrow{\frac{\pi}{4}} 0 < \frac{\pi}{4} - x < \frac{\pi}{2}$

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

		-2		1	
$1-m$	+		+		−
$2+m$	−		+		+
$\frac{1-m}{2+m}$	−		+		−

$\Rightarrow -2 < m < 1$

سوال ۱۰)

$\tan(300)\cos(210) + \tan(120)\sin(120) =$

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