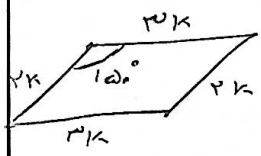
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۰ کلاس .....

۲۰

۱ (۲)



$$\rightarrow S = ab\sin\alpha \Rightarrow S = 3K \times 2K \times \sin 120^\circ = 3K^2 = 6\sqrt{3}$$

$$\rightarrow K = \sqrt{3}$$

$$P = 10K = 10 \times \sqrt{3} = 30\sqrt{3}$$ ✓

۲ (۲)

$$S_{ABC} = \frac{1}{2} \times 6 \times 5 \times \sin\hat{A} = 15\sin\hat{A}$$

$$S_{ADE} = \frac{1}{2} \times 4 \times 5 \times \sin\hat{A} = 10\sin\hat{A}$$

$$\left.\begin{array}{l} S_{ABC} - S_{ADE} = 3\sqrt{3}\sin\hat{A} = 15\sqrt{3} \\ \Rightarrow \sin\hat{A} = \frac{1}{2} \end{array}\right.$$

$$\hat{A} < 90^\circ \rightarrow A = 30^\circ$$

$$\Rightarrow \tan\hat{A} = \tan 30^\circ = \frac{\sqrt{3}}{3}$$ ✓

۳ (۲)

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

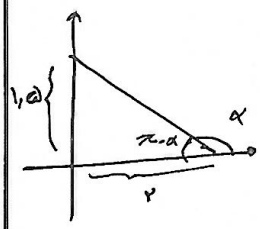
$$\Rightarrow |\cos\alpha| = -\cos\alpha \Rightarrow \cos\alpha < 0$$

$$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\cot\alpha} = -\tan\alpha$$

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

$\Rightarrow \alpha$ ناصیه سوم است ✓

۴ (۲)



$$\Rightarrow \tan(\pi-\alpha) = -\tan\alpha = \frac{1.5}{2} \rightarrow \tan\alpha = \frac{-1.5}{2}$$

$$\tan\left(\frac{\pi}{2}-\alpha\right) = \cot\alpha = \frac{1}{\tan\alpha} = \frac{2}{-1.5} = -\frac{4}{3}$$ ✓

۵ (۲)

$$\cos(2450^\circ) = \cos\left(\frac{3\pi}{2} - 22^\circ\right) = -\sin 22^\circ$$

$$\sin(150^\circ) = \sin(\pi - 30^\circ) = +\sin 30^\circ$$

$$\sin(200^\circ) = \sin(\pi + 20^\circ) = -\sin 20^\circ$$

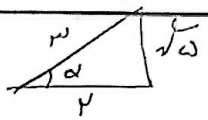
$$\cos(290^\circ) = \cos\left(\frac{3\pi}{2} + 20^\circ\right) = +\sin 20^\circ$$

$$\Rightarrow \frac{-3(\sin 22^\circ) - 2(\sin 20^\circ)}{-\sin 22^\circ - \sin 20^\circ} = \frac{-5\sin 22^\circ}{-2\sin 22^\circ}$$

$$= \frac{-5}{-2} = 2.5$$ ✓

۶ (۲)

$\sin(\frac{\pi}{2}+\alpha) = +\cos\alpha$, $\sin(\alpha-\pi) = -\sin\alpha$

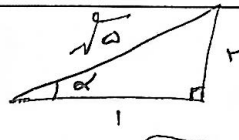


$\Rightarrow tg = \frac{-\sqrt{5}}{2}$, $\sin = \frac{-\sqrt{5}}{3}$

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

۷ (۲)

$\sin\alpha = 2\cos\alpha \longrightarrow \frac{\sin}{\cos} = tg = 2$



$\longrightarrow |\cos\alpha| = \frac{1}{\sqrt{5}}$ (ربع دوم) $\Rightarrow \cos\alpha = \frac{-1}{\sqrt{5}} = \frac{-\sqrt{5}}{5}$ ✓

۸ (۲)

$(m^2-1)y = -2mx + 3 \longrightarrow y = \frac{-2m}{m^2-1}x + 3 \longrightarrow$ شیب $= \frac{-2m}{m^2-1}$

زاویه $60°$ با جهت مثبت $\longrightarrow$ شیب $= tg60° = \sqrt{3}$

$$\Longrightarrow \frac{-2m}{m^2-1} = \sqrt{3} \Rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0$$

$$\longrightarrow m = \frac{-2 \pm \sqrt{16}}{2\sqrt{3}} = \frac{-2\pm 4}{2\sqrt{3}} \begin{cases} \frac{2}{2\sqrt{3}} = \frac{1}{\sqrt{3}} \\ \frac{-6}{2\sqrt{3}} = \frac{-3}{\sqrt{3}} \end{cases}$$

$\frac{1}{\sqrt{3}} + \frac{3}{\sqrt{3}} = \frac{4}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$ ✓

۹ (۲)

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

$\longrightarrow +\infty > tg(\frac{\pi}{2}-\alpha) > 0 \longrightarrow \frac{1-m}{2+m} > 0$

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

$\longrightarrow m = (-2, 1)$ ✓

۱۰ (۲)

$tg(30°)\cos(210°) + tg(90°)\sin(180°) = tg(\frac{5\pi}{3})\cos(\frac{7\pi}{6}) + tg(\frac{3\pi}{3})\sin(\frac{2\pi}{3})$

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