Date / Subject

آندیا کریمی یازدهم دختر B تکلیف ۲۶

①

$S = a^2 = ab\sin\alpha = ۲x \times ۳x \times \frac{۱}{۲}$

$x^۲ = ۱۸ \Rightarrow x = ۳\sqrt{۲}$

$محیط = ۲(۶\sqrt{۲} + ۹\sqrt{۲}) = ۳۰\sqrt{۲}$

②

$S_{ABC} - S_{ADE} = ۱/۷۵ \qquad \tan\hat{A} = ?$

$= \frac{۱}{۲} \times ۵ \times ۷ \times \sin\hat{A} - \frac{۱}{۲} \times ۷ \times ۴ \times \sin A = ۱/۷۵$

$= \frac{۳۵}{۲}\sin A - \frac{۲۸}{۲}\sin\hat{A} = ۱/۷۵ \Rightarrow \frac{۷}{۲}\cdot(\sin\hat{A}) = ۱/۷۵$

$\Rightarrow \sin A = \frac{۵}{۱۰} = \frac{۱}{۲} \qquad A = \begin{cases} ۳۰ \checkmark \\ ۱۵۰ \end{cases}$

$\tan ۳۰ = \frac{\sqrt{۳}}{۳}$

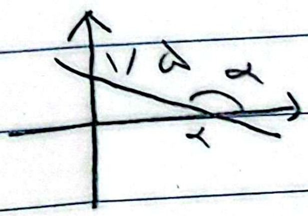
③

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{۱}{\cot\alpha} = -\frac{\sin}{\cos\alpha} \Rightarrow \sin\alpha < 0$ ①

$\frac{۱}{\sqrt{\cos^۲\alpha}} - \tan\alpha = \frac{۱+\sin\alpha}{|\cos\alpha|} \Rightarrow \frac{۱}{|\cos\alpha|} - \tan\alpha = \frac{۱}{|\cos\alpha|} + \frac{\sin\alpha}{|\cos\alpha|}$

$\Rightarrow \cos\alpha < 0$ ②   ① و ② $\Rightarrow$ ناحیه چهارم

④



$\tan\alpha = \frac{۱۵}{۲۰} = \frac{۳}{۴}$

$\tan(\frac{\pi}{۲} - \alpha) = \cot\alpha = \frac{۴}{۳}$

⑤

$\frac{۳\cos(۲۴۸) - ۲\sin(۱۵۸)}{\sin(۲۰۲) - \cos(۲۹۲)} = \frac{۳\cos(\frac{۳\pi}{۲} - ۲۲^\circ) - ۲\sin(\pi - ۲۲^\circ)}{\sin(\pi + ۲۲^\circ) - \cos(\frac{۳\pi}{۲} + ۲۲^\circ)}$

$\frac{-۳\sin ۲۲ - ۲\sin ۲۲}{-\sin ۲۲ - \sin ۲۲} = \frac{-۵\sin ۲۲^\circ}{-۲\sin ۲۲^\circ} = ۲/۵\sin ۲۲^\circ$

⑥

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

$\cos\alpha = \frac{+2}{3}$

$\cos^2\alpha + \sin^2\alpha = 1 \rightarrow \sin^2\alpha = 1-\frac{4}{9} = \frac{5}{9} \Rightarrow \sin\alpha = \frac{-\sqrt{5}}{3}$

$\Rightarrow \tan = \frac{-\sqrt{5}}{2} = \frac{\sqrt{5}}{2}$

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

⑦

$\sin\alpha = 2\cos\alpha \rightarrow \cos\alpha = ?$

$\cos^2\alpha = 1-\sin^2\alpha \Rightarrow \cos^2\alpha = 1-4\cos^2\alpha$

$5\cos^2\alpha = 1 \quad \cos^2\alpha = \frac{1}{5} \Rightarrow \cos\alpha = \pm\frac{1}{\sqrt{5}}$

سوم ربع $\rightarrow \frac{-1}{\sqrt{5}}$

⑧

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

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

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

$\begin{cases} m = \frac{+\sqrt{3}}{3} \\ m = -\sqrt{3} \end{cases} \quad \frac{\sqrt{3}}{3} + \frac{3\sqrt{3}}{3} = \frac{4\sqrt{3}}{3}$

⑨

$\frac{-\pi}{4} < x < \frac{\pi}{2} \rightarrow \frac{-\pi}{4} < -x < \frac{\pi}{4} \rightarrow \frac{\pi}{4} < \frac{\pi}{2} - x < \frac{3\pi}{4}$

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

	-2		1	
$1-m$	$+$	$+$	0	$-$
$2+m$	$-$	0	$+$	$+$

$(-2, 1)$

(10)

$$\tan(300)\cos(210)+\tan(135)\sin(225)=$$

$$\tan(540-240)\cos(720-240)+\tan(405-240)\sin(945-240)=$$

$$\tan\left(3\pi-\frac{4\pi}{3}\right)\cos\left(\frac{8\pi}{4}-\frac{\pi}{3}\right)+\tan\left(2\pi-\frac{\pi}{4}\right)\sin\left(4\pi-\frac{\pi}{4}\right)$$

$$=-\tan\frac{\pi}{3}\times-\sin\frac{\pi}{3}+\left(-\tan\frac{\pi}{4}\right)\times\left(\sin\frac{\pi}{4}\right)$$

$$=-\tan\frac{\pi}{3}\underbrace{\left(\sin\frac{\pi}{4}-\sin\frac{\pi}{4}\right)}_{0}=0$$