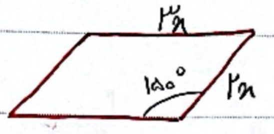
سارینا اسپنانی / یازدهم دختر C / شماره تکلیف (۲۶)

(۱)



$$2x \times 3x \times \sin 150^\circ = 54$$

$$\frac{6x^2}{2} = \cancel{54}\ 9$$

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

$$P = 4(3\sqrt{2}) + 6(3\sqrt{2}) = 10(3\sqrt{2}) = 30\sqrt{2}$$

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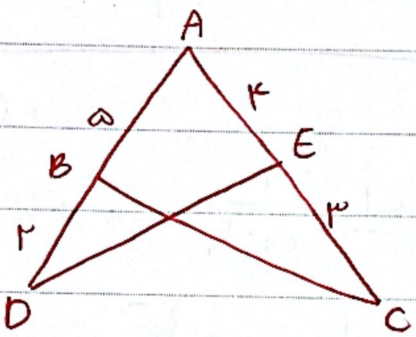
(۲)



$$S_{\overset{\triangle}{ABC}} - S_{\overset{\triangle}{ADE}} = 1.75$$

$$S_{\overset{\triangle}{ABC}} = 7 \times 5 \times \sin A \times \frac{1}{2} = 17.5 \sin A$$

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

$$17.5 \sin A - 14 \sin A = 3.5 \sin A = 1.75$$

$$\tan A = \frac{\sqrt{3}}{3} \longleftarrow A = 30^\circ \longleftarrow \sin A = \frac{1.75}{3.5} = \frac{1}{2}$$

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(۳)

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

ناحیه سوم

ناحیه ۱ یا ۳

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

$$-\tan \alpha < 0 \longrightarrow \boxed{\tan \alpha > 0}$$

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

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

$$|\sin \alpha| = \cancel{\cos \alpha} \times \frac{-\sin \alpha}{\cancel{\cos \alpha}}$$

$\sin \alpha < 0$ ناحیه سوم یا چهارم

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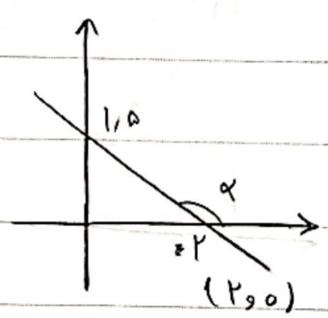
(۴)



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

$$y = ax + b \longrightarrow 2a + 1.5 = 0$$

$$b = 1.5 \qquad 2a = -1.5$$

$$a = -0.75$$

$$y = \frac{-3}{4}x + 1.5 \longrightarrow \tan a = \frac{-3}{4}$$

گزینه چهارم

۶)

$$\cos\alpha = \frac{۲}{۳} \qquad \cos^۲\alpha + \sin^۲\alpha = ۱ \longrightarrow \sin^۲\alpha = \frac{۵}{۹}$$

$$\sin\alpha = \frac{\sqrt{۵}}{۳}$$

$$\frac{\sin(\frac{\pi}{۲}+\alpha) - \sin(\alpha-\pi)}{|\tan^۲\alpha - ۱|} = \frac{\cos\alpha - \sin\alpha}{|\tan^۲\alpha-۱|} = \frac{\frac{۲}{۳}-\frac{\sqrt{۵}}{۳}}{\frac{۵}{۴}-\frac{۴}{۴}} = \frac{\frac{۲-\sqrt{۵}}{۳}}{\frac{۱}{۴}}$$

$$\frac{۸-۴\sqrt{۵}}{۳}$$

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۷) گزینه سوم

$$\sin\alpha = ۲\cos\alpha$$

$$\tan\alpha = \frac{۲\cos\alpha}{\cos\alpha} = ۲ \qquad \underbrace{\tan^۲\alpha + ۱}_{۵} = \frac{۱}{\cos^۲\alpha} \longrightarrow \cos^۲\alpha = \frac{۱}{۵}$$

$$\cos\alpha = -\frac{۱}{\sqrt{۵}} = \frac{-\sqrt{۵}}{۵}$$

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۸)

$$\alpha = ۶۰^\circ \longrightarrow \tan ۶۰^\circ = \sqrt{۳} \qquad ۲mx + (m^۲-۱)y = ۳$$

$$|m_۱ - m_۲| = \left|\frac{-۳}{\sqrt{۳}} - \frac{۱}{\sqrt{۳}}\right| = \frac{۴}{\sqrt{۳}}$$

$$y = \frac{-۲mx + ۳}{m^۲-۱} \longrightarrow \frac{-۲m}{m^۲-۱} = \sqrt{۳}$$

$$\sqrt{۳}m^۲ - \sqrt{۳} = -۲m \longrightarrow m^۲ + ۲m - ۳ = ۰ \longrightarrow (m+۳)(m-۱) = ۰$$

$$m_۱ = \frac{-۳}{\sqrt{۳}} \qquad m_۲ = \frac{۱}{\sqrt{۳}}$$

Sibo

(9)

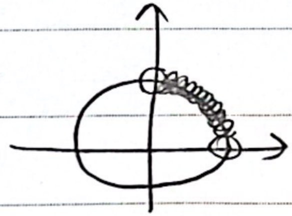
$$\tan\left(\frac{\pi}{4}-x\right)=\frac{1-m}{2+m} \quad , \quad -\frac{\pi}{4}<x<\frac{\pi}{4}$$

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

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

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

$\longrightarrow (-2\,,\,1)$



(10)

$$\tan(300^\circ)\,\cos(210^\circ)+\tan(480^\circ)\,\sin(840^\circ)$$

$$\tan(300^\circ) = \tan\left(2\pi-\frac{\pi}{3}\right) = -\tan\frac{\pi}{3}=-\sqrt{3}$$

$$\cos(210^\circ) = \cos\left(\pi+\frac{\pi}{6}\right) = -\cos\frac{\pi}{6}=-\frac{\sqrt{3}}{2}$$

$$\tan(480^\circ) = \tan\left(\frac{5\pi}{2}+\frac{\pi}{6}\right) = -\cot\frac{\pi}{6}=-\sqrt{3}$$

$$\sin(840^\circ)=\sin\left(5\pi-\frac{\pi}{3}\right) = \sin\frac{\pi}{3}=\frac{\sqrt{3}}{2}$$

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

۵

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

$$= \frac{-۳\sin(۲۲^\circ) - ۲\sin(۲۲^\circ)}{-\sin(۲۲^\circ) - \sin(۲۲^\circ)} = \frac{-۵\sin(۲۲^\circ)}{-۲\sin(۲۲^\circ)} = \frac{۵}{۲} = ۲,۵$$