تکلیف سری ۲۶ — یازدهم دختر C — ۱۸/۵ — نیلوشا ساسانپور

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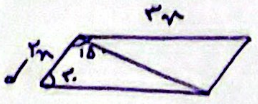

$2x \times 3x \times \sin 30 = 54$

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

محیط $= 10x = 10 \times 3\sqrt{2} = \boxed{30\sqrt{2}}$

(۲)

۲

$S_{ABC} = \frac{1}{2} \times 5 \times 7 \times \sin A \quad - \quad S_{ADE} = 4 \times 7 \times \frac{1}{2} \times \sin A$

$\frac{35}{2} \sin A - 14 \sin A = 1/75 \rightarrow \frac{7}{2} \sin A = \frac{7}{4} \rightarrow \sin A = \frac{\frac{7}{4}}{\frac{7}{2}} = \frac{2}{4} = \frac{1}{2} \qquad \cos A = \frac{\sqrt{3}}{2}$

$\boxed{\tan A = \frac{\sqrt{3}}{3}}$

(۲)

۳

$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} \xrightarrow{\cos\alpha<0} -\left(\frac{1+\sin\alpha}{\cos\alpha}\right) = \frac{1+\sin\alpha}{-\cos\alpha}$; $\boxed{\cos\alpha<0}$

$\boxed{\sin\alpha<0} \rightarrow \frac{-\sin\alpha}{\cos\alpha} = \frac{-1}{\frac{\cos\alpha}{\sin\alpha}}$

ناحیه سوم هم $\sin\alpha$ منفی است هم $\cos\alpha$

(۲)

۴

$\tan(\pi - \alpha) = \frac{1/5}{2} \rightarrow \tan\alpha = -\frac{3}{4} \qquad \tan\left(\frac{\pi}{2} - \alpha\right) = \frac{1}{\tan\alpha} = \frac{1}{-\frac{3}{4}} = \boxed{-\frac{4}{3}}$

(۲)

۵

$\frac{3\cos(248^\circ) - 2\sin(158^\circ)}{\sin(202^\circ) - \cos(292^\circ)} = \frac{3\cos(270 - 22) - 2\sin(180 - 22)}{\sin(180 + 22) - \cos(270 + 22)} = \frac{-3\sin 22 - 2\sin 22}{-\sin 22 - \sin 22} = \frac{5}{2} = \boxed{2/5}$

(۱)

۶

$\frac{\sin(\alpha + \frac{\pi}{2}) - \sin(\alpha - \pi)}{|\tan^2(\alpha) - 1|} = \frac{\cos\alpha + \overbrace{\sin(\pi - \alpha)}^{\sin\alpha}}{|\tan^2(\alpha) - 1|} \qquad \cos\alpha = \frac{2}{3}$ (مثلث: ۳، ۲، $\sqrt{5}$) $\rightarrow \sin\alpha = -\frac{\sqrt{5}}{3}$ ، $\cos\alpha = -\frac{\sqrt{5}}{2}$

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

(۲)

۷ (۱)

$\sin\alpha = 2\cos\alpha \qquad \sin^2\alpha + \cos^2\alpha = 1$

$4\cos^2\alpha + \cos^2\alpha = 1 \rightarrow 5\cos^2\alpha = 1 \rightarrow \cos^2\alpha = \frac{1}{5} \rightarrow \cos\alpha = \pm\frac{1}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = -\frac{\sqrt{5}}{5}$

چون α در ربع سوم بود

$\boxed{\cos\alpha = -\frac{\sqrt{5}}{5}}$

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۸ (۱)

$\tan 60 = \sqrt{3}$

$\sqrt{3}$ = شیب

$(m^2-1)y = -2mx + 3 \rightarrow y = \frac{-2m}{m^2-1}x + \frac{3}{m^2-1} \rightarrow \frac{-2m}{m^2-1} = \sqrt{3} \rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0$

$m^2 + 2m - 3 = 0 \rightarrow (m+3)(m-1)$

$m = \frac{-3}{\sqrt{3}} \qquad m = \frac{1}{\sqrt{3}}$

$\frac{1}{\sqrt{3}} + \frac{3}{\sqrt{3}} = \frac{4}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{4\sqrt{3}}{3}} \quad \boxed{\frac{4\sqrt{3}}{3}}$

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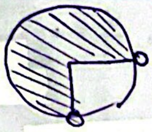
۹ (۰/۵)

$-\frac{\pi}{4} < x < \frac{\pi}{4}$ ⟵ تانژانت برای ⟵



$\tan(\frac{\pi}{4} - x) = -\tan(x - \frac{\pi}{4})$ → $-\tan 0$ ، $-\tan(-\frac{\pi}{2})$

$< -\tan(x - \frac{\pi}{4}) <$

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

$\frac{1-m}{2+m} > 0 \rightarrow m \in (-2,1)$ ⟵ تانژانت ⊕ ⟵ کمان در ربع اول است

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۱۰ (۱)

$\tan(300)\cos(210) + \tan(120)\sin(120) = (-\sqrt{3})(-\frac{\sqrt{3}}{2}) + (-\sqrt{3})(\frac{\sqrt{3}}{2}) = \frac{3}{2} - \frac{3}{2} = \boxed{0}$

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