نام و نام خانوادگی ..آرشیا نادافی.. پاسخنامه تشریحی تکلیف شماره ..۲۰.. کلاس ..دهم B..

★ ۲۰ آفرین (^_^)

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$$(\sin 13\omega + \sin 77\omega)(\cos 47\omega - \cos 13\omega) = \frac{(\sqrt{2}-\sqrt{3})(\sqrt{2}+\sqrt{3})}{4} = \frac{2-3}{4} = -\frac{1}{4}$$

$\sin 13\omega = \frac{\sqrt{2}}{2}$, $\sin 77\omega = \frac{\sqrt{3}}{2}$, $\cos 47\omega = \frac{\sqrt{2}}{2}$, $\cos 13\omega = \frac{\sqrt{3}}{2}$

ب)
$$\frac{1 + 3\tan^2 210}{4\cos^2 33 + 2\cos^2 226} = \frac{1 + 3\times\frac{1}{3}}{3+1} = \frac{2}{4} = \frac{1}{2}$$

$\tan 210 = \frac{1}{\sqrt{3}}$, $\cos 33 = \frac{\sqrt{3}}{2}$, $\cos 226 = \frac{1}{2}$

ت $\frac{2}{4} = \frac{1}{2}$

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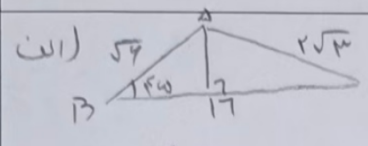
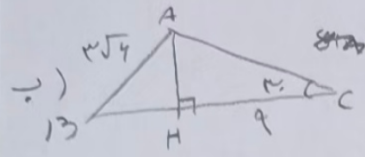
الف)



$HC = ?$

$HC^2 = AC^2 - AH^2 \Rightarrow (2\sqrt{3})^2 - (\sqrt{3})^2 = 12 - 3 = 9 \rightarrow HC = 3$

ب)



$\hat{B} = ?$

$AH = HC \times \tan 30^\circ \rightarrow AH = 9 \times \frac{1}{\sqrt{3}} = 3\sqrt{3}$

$\sin\hat{B} = \frac{AH}{AB} = \frac{3\sqrt{3}}{3\sqrt{4}} = \frac{1}{\sqrt{2}} \Rightarrow \hat{B} = 45^\circ$

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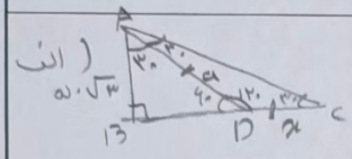
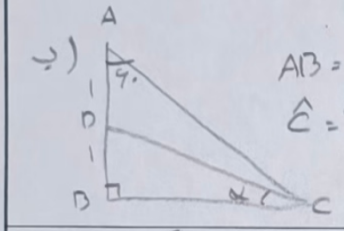
الف)



$AD = \frac{\sqrt{3}}{2}a = 30\sqrt{3} \rightarrow a = 100 \rightarrow x = 100$

ب)



$AB = AD + DB \Rightarrow 2$

$\hat{C} = 30^\circ \Rightarrow \tan 30^\circ = \frac{AB}{BC} = \frac{1}{\sqrt{3}} = \frac{2}{BC} \Rightarrow BC = 2\sqrt{3}$

$DC = \sqrt{DB^2 + BC^2} \rightarrow \sqrt{1+12} = \sqrt{13} \rightarrow \sin\alpha = \frac{1}{\sqrt{13}} \times \frac{\sqrt{13}}{\sqrt{13}} = \frac{\sqrt{13}}{13}$

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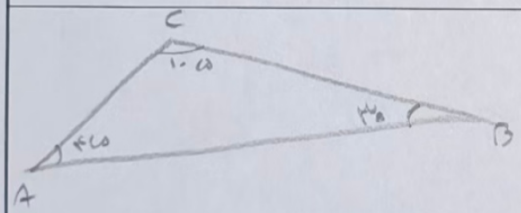

$\frac{AB}{AC} = \frac{\sin C}{\sin B} \Rightarrow \frac{\sin 105^\circ}{\sin 30^\circ}$

$\rightarrow \sin 105^\circ = \sin(60^\circ + 45^\circ) = \frac{\sqrt{6}+\sqrt{2}}{4}$

$\rightarrow \frac{AB}{AC} = \frac{\frac{\sqrt{6}+\sqrt{2}}{4}}{\frac{1}{2}} = \frac{\sqrt{6}+\sqrt{2}}{2}$

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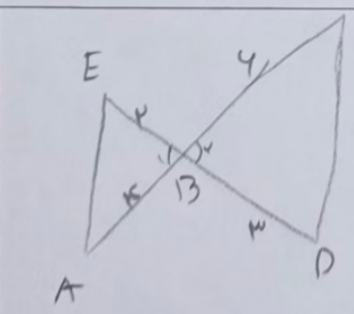

$\hat{B}_1 = \hat{B}_2 \rightarrow$ متقابل به راس

$\frac{S_{ABE}}{S_{BCD}} = \frac{3 \times 4 \times \sin B_1}{4 \times 6 \times \sin B_2} = \frac{4}{6}$

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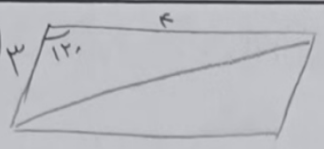
الف) 

$S = 4 \times 3 \times \sin 120 \rightarrow 12 \times \frac{\sqrt{3}}{2} = 6\sqrt{3}$

دقت کن دختر!

ب) $\frac{4 \times 4 \times \sin 120}{2} = 8 \times \frac{\sqrt{3}}{2} = 4\sqrt{3}$

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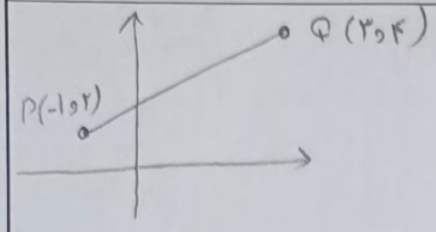

$PQ = (4,2) \rightarrow (3-(-1), (4-(2))$

$\cos\theta = \frac{a}{\sqrt{a^2+b^2}} = \frac{4}{\sqrt{16+4}} = \frac{4}{\sqrt{20}} = \frac{2}{\sqrt{5}}$

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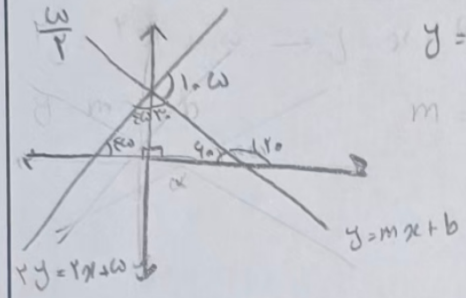

$y = x + \frac{\omega}{2} \rightarrow \tan\alpha = 1 \rightarrow \alpha = 45$

$\tan 120 = -\sqrt{3} \rightarrow y = \underbrace{-\sqrt{3}}_{m} x + \underbrace{\frac{\omega}{2}}_{b}$

$\rightarrow mb = -\frac{\omega\sqrt{3}}{2}$

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$f(x) = \cos(\pi + x) + \sin(\frac{\pi}{2} + x) - \tan(\frac{3\pi}{2} + x)$, $f(\frac{\omega\pi}{4})$

$\rightarrow -\cos x + \cos x + \cot x \rightarrow f(\frac{\omega\pi}{4}) = \cot(\frac{\omega\pi}{4})$

$\rightarrow \cot 180^\circ = -\sqrt{3}$

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$$\frac{\sin(\frac{17\pi}{2} + x) + \cos(\frac{19\pi}{2} - x)}{\cos(3\pi + x) - \sin(7\pi - x)} = \frac{\cos x + \sin x}{-\cos x + \sin x}$$

$$\frac{\cos x - \sin x}{-(\cos x - \sin x)} = -1$$