زهرا دهقانی　　　دهم دختران A　　　تکلیف شماره ۲۰

الف) $(\sin 135^\circ + \sin 300^\circ)(\cos 315^\circ - \cos 150^\circ)$ 1

$$= \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{3}}{2}\right)\left(\frac{\sqrt{2}}{2} - \left(-\frac{\sqrt{3}}{2}\right)\right)$$

$$= \left(\frac{\sqrt{2} - \sqrt{3}}{2}\right)\left(\frac{\sqrt{2} + \sqrt{3}}{2}\right) = \frac{(\sqrt{2}-\sqrt{3})(\sqrt{2}+\sqrt{3})}{4}$$

$$= \boxed{\frac{-1}{4}}$$

ب) $\dfrac{1+3\tan^2 210^\circ}{4\cos^2 330^\circ + 2\cos^2 225^\circ} =$

$$= \frac{1+3\left(\frac{1}{\sqrt{3}}\right)^2}{4\left(\frac{\sqrt{3}}{2}\right)^2 + 2\left(\frac{-\sqrt{2}}{2}\right)^2} = \frac{1+1}{3+1} = \frac{2}{4} = \boxed{\frac{1}{2}}$$

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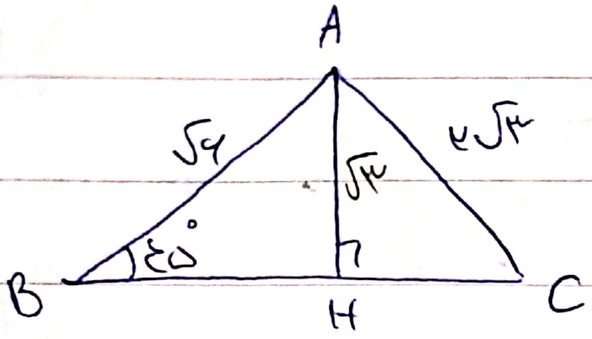
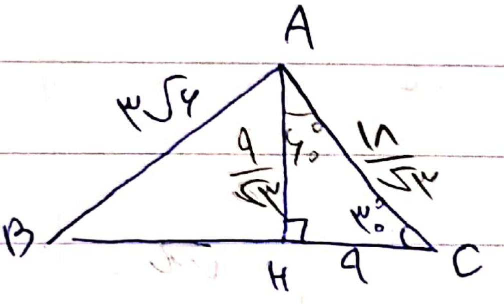


$\sin 45^\circ = \frac{AH}{\sqrt{6}} = \frac{\sqrt{2}}{2}$

$AH = \sqrt{3}$

$(2\sqrt{3})^2 = (\sqrt{3})^2 + (HC)^2 \rightarrow 12 - 3 = (HC)^2$

$(HC)^2 = 9 \rightarrow \boxed{HC = 3}$



$\cos 30^\circ = \frac{9}{AC} = \frac{\sqrt{3}}{2}$

$AC = \frac{18}{\sqrt{3}}$

$\cos 60^\circ = \frac{AH}{\frac{18}{\sqrt{3}}} = \frac{1}{2} \rightarrow \frac{\frac{AH}{1}}{\frac{18}{\sqrt{3}}} = \frac{\sqrt{3}AH}{18} = \frac{1}{2}$

$AH = \frac{9}{\sqrt{3}}$

$\sin \hat{B} = \frac{\frac{9}{\sqrt{3}}}{\frac{3\sqrt{6}}{1}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2} \rightarrow 45^\circ , 135^\circ$

ولی جواب ۴۵° می‌شود چون منطقی‌تر است

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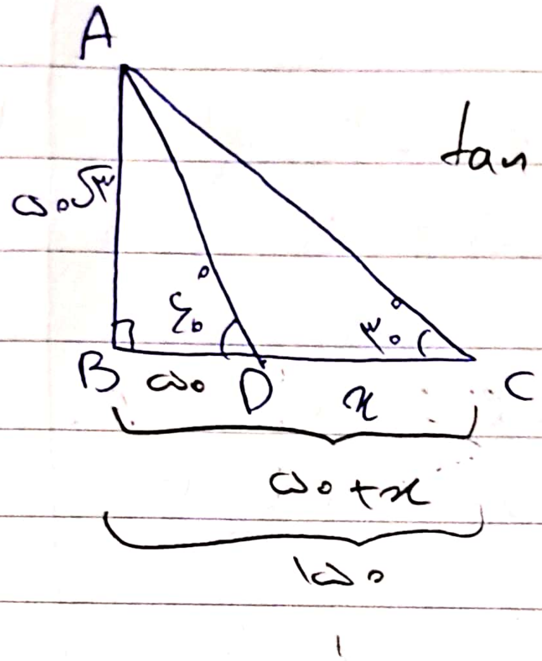


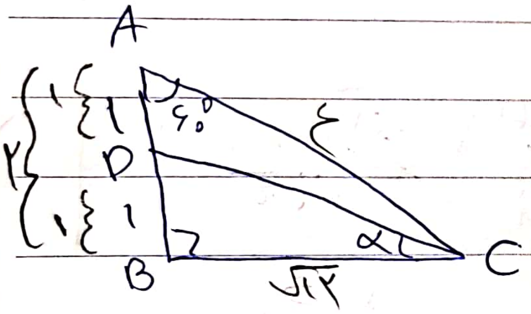
$$\tan 60^\circ = \frac{50\sqrt{3}}{BD} = \sqrt{3} \rightarrow BD = 50$$ 3

$$\tan 30^\circ = \frac{50\sqrt{3}}{50+x} = \frac{1}{\sqrt{3}}$$

$$\rightarrow 50\sqrt{3}(\sqrt{3}) = 50 + x$$

$$150 = 50 + x$$

$$\boxed{x = 100}$$



$$\cos 60^\circ = \frac{2}{AC} = \frac{1}{2} \rightarrow AC = 4$$

$$(BC)^2 = 16 - 4 \Rightarrow BC = \sqrt{12}$$

$$(DC)^2 = (\sqrt{12})^2 + (1)^2 \rightarrow (DC)^2 = 13 \rightarrow DC = \sqrt{13}$$

$$\sin\alpha = \frac{1}{\sqrt{13}} \times \frac{\sqrt{13}}{\sqrt{13}} = \boxed{\frac{\sqrt{13}}{13}}$$

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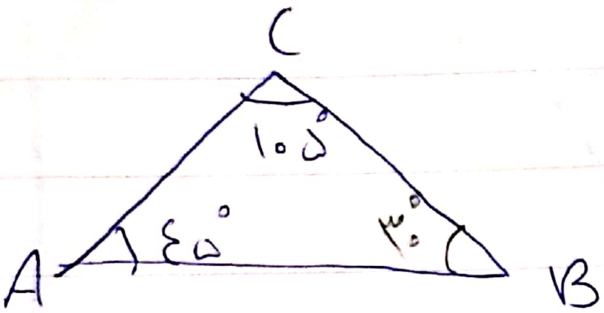

$$\frac{AB}{\sin \cancel{C}} = \frac{AC}{\sin \cancel{B}} = \frac{BC}{\sin \cancel{A}} \Rightarrow \frac{AB}{\sin 105^\circ} = \frac{AC}{\frac{1}{2}} = \frac{BC}{\frac{\sqrt{2}}{2}}$$

$105^\circ \quad 30^\circ \quad 45^\circ$

$$\to \frac{AB}{AC} \Rightarrow \frac{\frac{\sqrt{6}}{4}+\frac{\sqrt{2}}{4}}{\frac{1}{2}} = \boxed{\frac{\sqrt{2}+\sqrt{6}}{2}}$$

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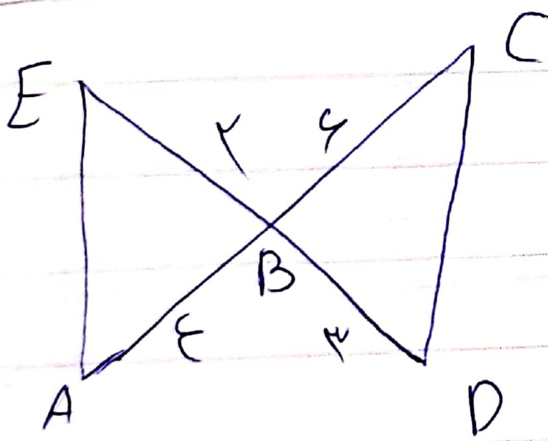

$$\frac{S_{A\hat{B}E}}{S_{D\hat{B}C}} = \frac{\cancel{\frac{1}{2}}\times 2\times 4\times \cancel{\sin\alpha}}{\cancel{\frac{1}{2}}\times 6\times 3\times \cancel{\sin\alpha}}$$

$$\Rightarrow \frac{2\times 4}{6\times 3} = \frac{8}{18} = \boxed{\frac{4}{9}}$$

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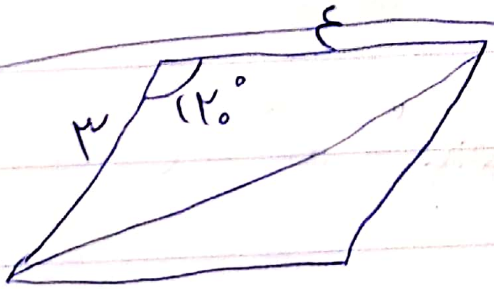
الف)



$$S = ab\sin\alpha$$

$$\Rightarrow 4\times 3\times \sin 120^\circ$$

$$\Rightarrow \cancel{12}^{\,6}\times \frac{\sqrt{3}}{\cancel{2}} = \boxed{6\sqrt{3}}$$

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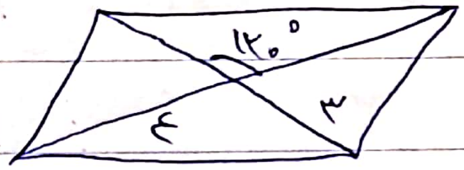
ب)



$$S = \frac{1}{2} \times d \times d' \times \sin\alpha$$

$$\Rightarrow \frac{1}{\cancel{2}} \times \cancel{4}^{\,2} \times 3 \times \frac{\sqrt{3}}{2}$$

$$\Rightarrow \cancel{2} \times 3 \times \frac{\sqrt{3}}{\cancel{2}} = \boxed{3\sqrt{3}}$$

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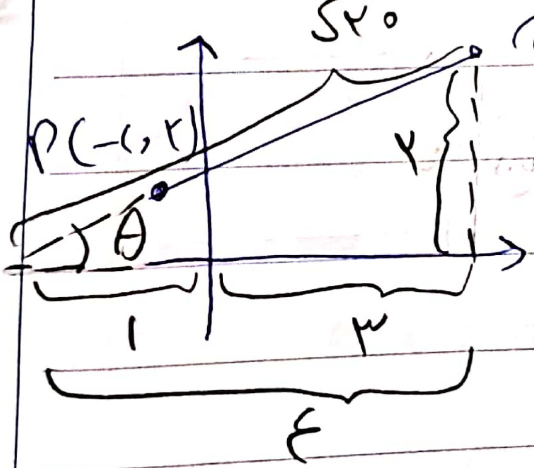
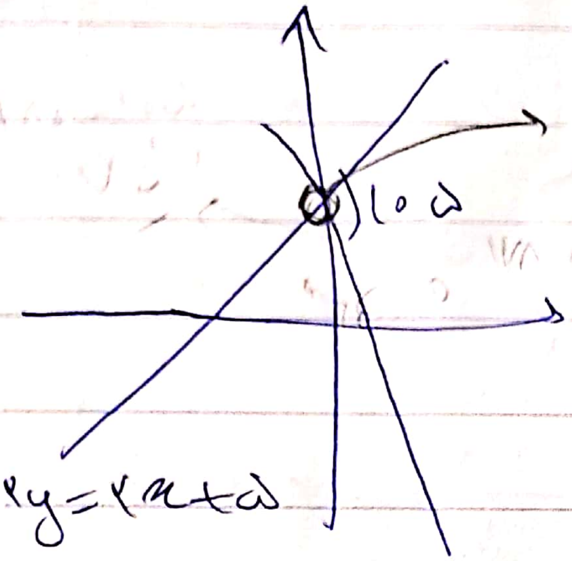


$$2^2 + 4^2 = (AB)^2 \rightarrow AB = \sqrt{20}$$

فیثاغورس $\Leftarrow 2^2 + 4^2 = (AB)^2$

$$AB = \sqrt{20}$$

$$\boxed{\cos\theta = \frac{\text{مجاور}}{\text{وتر}} = \frac{4}{\sqrt{20}}}$$



$2y=2x+5$ $\quad y=mx+b$

در این نقطه هر دو
عرض از مبدا = ۰
پس می‌توانیم
بنویسیم

$x+\frac{5}{2}=mx+b=0$

$$\frac{2y}{2}=\frac{2x+5}{2}$$

$$y=\frac{2x}{2}+\frac{5}{2}$$

$$y=x+\frac{5}{2}$$

$\boxed{b=\frac{5}{2}}$

$mx=x \rightarrow \boxed{m=1}$

$mb=1\times\frac{5}{2}=\boxed{\frac{5}{2}}$

Date:

Sub:

$$-\tan\left(\frac{3\pi}{2}+x\right)$$

$$f(x)=\cos(\pi+x)+\sin\left(\frac{\pi}{2}-x\right) \quad 4$$

$$f(x)=-\cos x+\cos x-(-\cot x)$$

$$=\cancel{-\cos x}+\cancel{\cos x}+\cot x$$

$$=\cot x$$

$$f\left(\frac{5\pi}{4}\right)=\cot\frac{5\pi}{4}\to 1 \to \sqrt{2}$$

$$+\cos x \qquad\qquad +\sin x$$

$$\frac{\sin\left(\frac{\pi}{2}+x\right)+\cos\left(\frac{\pi}{2}-x\right)}{\cos(2\pi+x)-\sin(4\pi-x)} \quad 10$$

$$+\cos x \qquad\qquad -(+\sin x)$$

$$\Rightarrow \frac{+\cos x+\sin x}{+\cos x-\sin x}$$