۱۷,۲۵

آرا دهدادی

۱) ۲

الف) $\left(\frac{\sqrt{2}}{2}+\left(-\frac{\sqrt{3}}{2}\right)\right)\left(\frac{\sqrt{2}}{2}-\left(-\frac{\sqrt{3}}{2}\right)\right)=\frac{2}{4}-\frac{3}{4}=-\frac{1}{4}$ ✓ (اتحاد مزدوج)

ب) $\frac{1+3\left(\frac{1}{3}\right)}{2\left(\frac{3}{4}\right)+2\left(\frac{1}{2}\right)}=\frac{1}{2}$ ✓

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۲) الف) ۲

$AH=\frac{\sqrt{2}}{2}\times\sqrt{6}=\frac{\sqrt{12}}{2}$ فیثاغورث $\frac{12}{4}+HC^2=12\rightarrow HC=\sqrt{9}=3$ ✓

ب) $AH=\frac{\sqrt{3}}{3}\times 9=3\sqrt{3}\rightarrow \sin B=\frac{3\sqrt{3}}{3\sqrt{6}}=\frac{1}{\sqrt{2}}=\frac{\sqrt{2}}{2}\Rightarrow \hat{B}=45^\circ$ ✓

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۳) ۱,۵

الف) $BD=\frac{50\sqrt{3}}{\sqrt{3}}=50$ ($\tan 60 \leftarrow \sqrt{3}$) $\quad BC=\frac{50\sqrt{3}}{\frac{\sqrt{3}}{3}}=150\rightarrow x=BC-BD=100$ ✓

$DC=\sqrt{13}$

ب) $BC=2\times\sqrt{3}=2\sqrt{3}$ ✓ $\rightarrow \sin\alpha=$ ~~$\frac{1}{\sqrt{3}}$~~ $\rightarrow \sin\alpha=\frac{BD}{DC}=\boxed{\frac{1}{\sqrt{13}}}$

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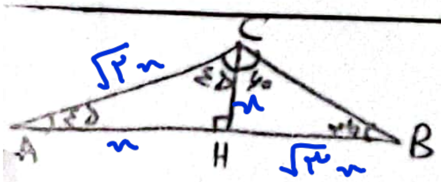
۴) ۱



$\rightarrow AC=\sqrt{2}CH$

$AB=CH+$ ~~CH~~ $=2CH \Rightarrow \frac{AB}{AC}=\frac{2CH}{\sqrt{2}CH}=$ ~~$\frac{2}{\sqrt{2}}$~~ $\boxed{\frac{1+\sqrt{3}}{\sqrt{2}}}$

$\hookrightarrow \tan 30=\frac{x}{BH}\rightarrow BH=\sqrt{3}x$

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۵) ۲

$\frac{S_{ABE}}{S_{BCD}}=\frac{\frac{1}{2}\times4\times2\times\sin B}{\frac{1}{2}\times6\times3\times\sin B}=\frac{4}{9}$ ✓

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۶) ۲

الف) $S=\frac{1}{2}\times2\times3\times4\times\frac{\sqrt{3}}{2}=6\sqrt{3}$ ✓ (دو مثلث)

ب) $S=\frac{1}{2}\times3\times4\times\frac{\sqrt{3}}{2}=3\sqrt{3}$ ✓

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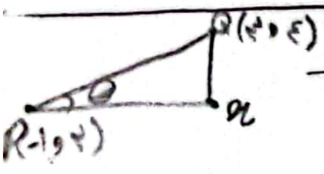
۷) ۱



$\rightarrow Rx=4$ و $Qx=2\Rightarrow RQ=\sqrt{20}$ ✓

$\cos\theta=\frac{PQ}{Px}=$ ~~$\frac{\sqrt{2}}{2}$~~ $\frac{2}{\sqrt{5}}=\frac{Px}{PQ}$ ضلع مجاور به وتر $\leftarrow \cos\theta$

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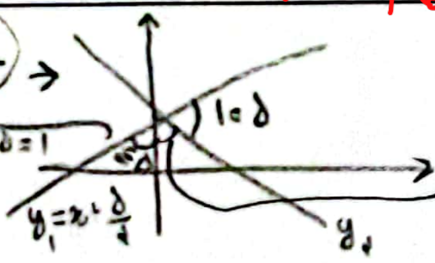
۸) ۲

$2y=2x+5\rightarrow y_1=x+\frac{5}{2}\rightarrow$

$\tan 45=1$

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



$\rightarrow m=\tan 60=\sqrt{3}\rightarrow -\sqrt{3}$

$\Rightarrow mb=\frac{5}{2}\times-\sqrt{3}=\frac{-5\sqrt{3}}{2}$ ✓

Scanned with CamScanner

$\cos\frac{11}{6}\pi + \sin\frac{10}{6}\pi - \tan\frac{2\pi}{3} = \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} - \sqrt{3} = -\sqrt{3}$ (9 1,75

(10

(2)

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