نام و نام خانوادگی ...راد و مسعود داور... پاسخنامه تشریحی تکلیف شماره ...۲۰... کلاس ...دهم B...

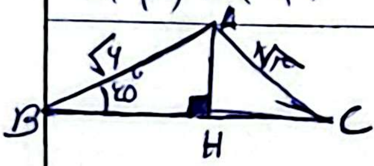
**۱**

الف) $\left(\frac{\sqrt2}{2}+\frac{\sqrt3}{2}\right)\left(\frac{\sqrt2}{2}-\left(-\frac{\sqrt3}{2}\right)\right)=\left(\frac{\sqrt2-\sqrt3}{2}\right)\left(\frac{\sqrt2+\sqrt3}{2}\right)=\frac{2-3}{4}=\boxed{-\frac{1}{4}}$

ب) $\frac{1+3\left(\frac{\sqrt3}{3}\right)^2}{4\left(\frac{\sqrt2}{2}\right)^2+2\left(-\frac{\sqrt2}{2}\right)^2}=\frac{1+1}{3+1}=\frac{2}{4}=\boxed{\frac{1}{2}}$

**۲**

الف)

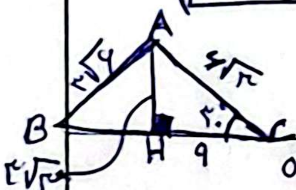


$\overline{AH}^2=\overline{BH}\cdot\overline{CH}$

$\sqrt6\cdot\sin_{45°}$ , $\sqrt6\cdot\cos_{45°}$

$3=\sqrt3\cdot\overline{CH}\Rightarrow\boxed{|\overline{CH}|=\sqrt3}$

ب)



$3\sqrt3$

$\boxed{\overline{CH}\tan_{30°}=3\sqrt3}^2$

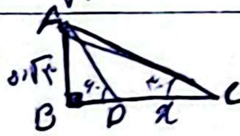
$\overline{AH}^2=\overline{BH}\cdot\overline{CH}$

$27=3\cdot9$

$\sin\hat{B}=\frac{3\sqrt3}{3\sqrt6}=\frac{1}{\sqrt2}=\frac{\sqrt2}{2}\Rightarrow\boxed{\hat{B}=45°}$

**۳**

الف)



$50\sqrt3\cdot\cot_{30°}=150$

$x=\overline{DC}=\overline{BC}-\overline{BD}=150-50=\boxed{100=x}$

$50\sqrt3\cdot\cot_{60°}=50$

ب)

$\overline{AB}=\overline{AC}\sin_{30°}=2=\overline{AC}\Rightarrow\boxed{\overline{AC}=4}$ $\overline{DC}=\sqrt{12+1}=\boxed{\sqrt{13}}$

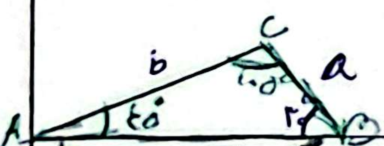
$\overline{BC}=\sqrt{AC^2-AB^2}=\boxed{\sqrt{12}=\overline{BC}}$ $\sin\alpha=\frac{\overline{DB}}{\overline{DC}}=\boxed{\frac{1}{\sqrt{13}}}$

**۴**

$\sin_{100}=\sin_{(90+10)}=\cos_{(10)}=\cos_{(45-35)}=\cos_{45°}\cos_{30°}+\sin_{45°}\sin_{30°}$

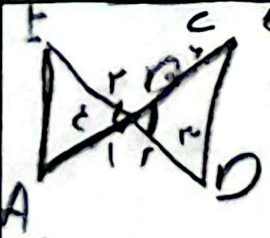
$\frac{\sqrt2}{2}\quad\frac{\sqrt3}{2}\quad\frac{\sqrt2}{2}\quad\frac{1}{2}$

$\frac{\overline{AB}}{\overline{AC}}=\frac{c}{b}=\frac{\frac{\sqrt6+\sqrt2}{4}}{\frac{1}{2}}=\boxed{\frac{\sqrt6+\sqrt2}{2}=\frac{\sqrt3+1}{\sqrt2}}$ $\frac{\sqrt6+\sqrt2}{4}=$



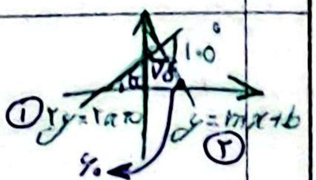
$\frac{\overline{AC}=b}{\sin\hat{B}}=\frac{\overline{AB}=c}{\sin\hat{C}}=\frac{b}{\frac{1}{2}}=\frac{c}{\left(\sin_{100}=\frac{\sqrt6+\sqrt2}{4}\right)}\Rightarrow\frac{c}{b}=\frac{\frac{\sqrt6+\sqrt2}{4}}{\frac{1}{2}}$

**۵**



$\left.\begin{array}{l}\frac{\overline{BE}}{\overline{DB}}=\frac{\overline{AB}}{\overline{BC}}\\ \hat{B}_1=\hat{B}_2\end{array}\right\}\Rightarrow A\hat{E}B\cong B\hat{C}D$

$\frac{S_{A\hat{B}E}}{S_{D\hat{C}B}}=\left(\frac{AB}{BC}\right)^2=\boxed{\frac{1}{2,25}}$

| | |
|---|---|
| الف) $S = \frac{۱}{۲} ab \sin\alpha = \frac{۳\times ۴\times \frac{\sqrt{۳}}{۲}}{۲} = \boxed{۳\sqrt{۳}}$<br><br>ب) $S = \frac{۱}{۲} ab \sin\alpha = \frac{۳\times ۴\times \frac{\sqrt{۳}}{۲}}{۲} = \boxed{۳\sqrt{۳}}$ | ۶ |
| $a_{PQ} = \frac{\Delta y}{\Delta x} = \frac{۴-۲}{۳-(-۱)} = \boxed{\frac{۲}{۴} = \frac{۱}{۲} = PQ \text{ شیب خط}}\ \boxed{= \frac{\sin\alpha}{\cos\alpha} = \tan\alpha}$<br>$\tan\alpha = \frac{\sin\alpha}{\cos\alpha} = \frac{۱}{۲} \Rightarrow ۲\sin\alpha = \cos\alpha \Rightarrow \sin^۲\alpha + \cos^۲\alpha = ۱ \Rightarrow \sin^۲\alpha + ۴\sin^۲\alpha = ۱$<br>$۵\sin^۲\alpha = ۱ \Rightarrow \sin^۲\alpha = \frac{۱}{۵} \Rightarrow \sin\alpha = \pm\frac{\sqrt{۵}}{۵} \xrightarrow[۲\sin\alpha = \cos\alpha]{} \boxed{\cos\alpha = \pm\frac{۲\sqrt{۵}}{۵}}$ | |
| $۲y = ۲x+۵ \Rightarrow y = x+۲/۵ \Rightarrow a = ۱ = \tan\theta \Rightarrow \theta = ۴۵^\circ$<br><br>$\boxed{\tan ۱۲۰^\circ = -\sqrt{۳} = m}$<br>از آنجا که شیب خط تانژانت زاویه است که خط با سوی مثبت محور x ها می سازد $\Leftarrow$ زاویه خط $۱۲۰^\circ$ است | ۸ |
| $f\left(\frac{۵\pi}{۶}\right) = \cos\left(\pi+\frac{۵\pi}{۶}\right) + \sin\left(\frac{\pi}{۲}-\frac{۵\pi}{۶}\right) - \tan\left(\frac{۳\pi}{۲}+\frac{۵\pi}{۶}\right)$<br>$-\cos\left(\frac{۵\pi}{۶}\right) + \cos\frac{۵\pi}{۶} + \cot\frac{۵\pi}{۶} = \boxed{\cot\frac{۵\pi}{۶} = -\frac{\sqrt{۳}}{۳}}$ | ۹ |
| $\frac{\sin\left(\frac{۱۷\pi}{۲}+x\right) + \cos\left(\frac{۱۵\pi}{۲}-x\right)}{\cos(۳\pi+x) + \sin(۷\pi-x)} = \frac{\sin\left(\frac{\pi}{۲}+x\right) + \cos\left(\frac{۳\pi}{۲}-x\right)}{\cos(\pi+x) - \sin(۲\pi-x)} =$<br>$\frac{۸+۸\pi}{۲}$, $۱۲+۳\pi$, $۲\pi+\pi$, $۴\pi+۳\pi$, $\cos x$, $-\sin x$, $-\cos x$, $-(-\sin x)$<br>$\frac{\cos x - \sin x}{\sin x - \cos x} = \boxed{-۱}$ | ۱۰ |