نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

۱

الف) $\left(\frac{\sqrt{۳}}{۲}\right)+\left(-\frac{\sqrt{۳}}{۲}\right)\left(\left(\frac{\sqrt{۲}}{۲}\right)-\left(-\frac{\sqrt{۳}}{۲}\right)\right) = \cos\beta = \left(\frac{\sqrt{۲}}{۲}\right)^{۲}-\left(-\frac{\sqrt{۳}}{۲}\right)^{۲} = \frac{۱}{۲}-\frac{۳}{۴} = -\frac{۱}{۴}$

(تفاضل دو عدد)

ب)
$$\frac{۱+۳\times\left(\frac{۱}{\sqrt{۳}}\right)^{۲}}{۴\left(\frac{\sqrt{۳}}{۲}\right)^{۲}+۲\left(-\frac{\sqrt{۳}}{۲}\right)^{۱}} = \frac{۱+۱}{۱+۱} = ۱$$

۲

الف) $\frac{\sqrt{۲}}{۲}=\frac{AH}{\sqrt{۶}}$ $AH=\frac{۳\sqrt{۲}}{۲}=\sqrt{۱۸}$ $HC^{۲}+(\sqrt{۳})^{۲}=۲\sqrt{۳}^{۲} \Rightarrow ۳+HC^{۲}=۱۲$

$HC^{۲}=۹ \Rightarrow HC=۳$

ب) $\frac{۱}{\sqrt{۳}}=\frac{AH}{۹} \Rightarrow AH=\frac{۹\sqrt{۳}}{۳}=۳\sqrt{۳}$ $\frac{۳\sqrt{۳}}{۳\sqrt{۶}}=\sin B=\frac{۱}{\sqrt{۲}}=\frac{\sqrt{۲}}{۲}$

$\hat{B}=۴۵^{\circ}$

۳

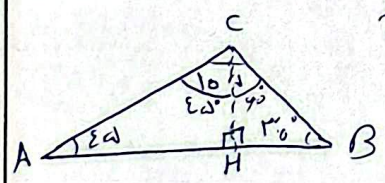
الف) $\sin ۶۰=\frac{\sqrt{۳}}{۲}=\frac{۵۰\sqrt{۳}}{AD}$ $AD=۱۰۰$ $\cos ۶۰=\frac{۱}{۲}=\frac{BD}{۱۰۰}$ $BD=۵۰$

$\tan ۳۰=\frac{۱}{\sqrt{۳}}=\frac{۵۰\sqrt{۳}}{۵۰+DC}$ $۵۰+DC=۱۵۰ \Rightarrow DC=۱۰۰=x$

ب) $\tan ۶۰^{\circ}=\sqrt{۳}=\frac{BC}{۲}$ $BC=۲\sqrt{۳}$ $\sin\alpha=\frac{۱}{\sqrt{۱۳}}$

$DC^{۲}=(۲\sqrt{۳})^{۲}+۱^{۲} \Rightarrow DC^{۲}=۱۳$ $DC=\sqrt{۱۳}$

۴



$\tan ۶۰=\sqrt{۳}=\frac{HB}{HC}$ $HB=۳HC\sqrt{۳}$

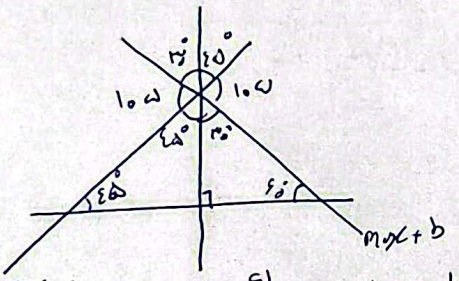
$\sin ۴۵=\frac{\sqrt{۲}}{۲}=\frac{CH}{AC}$ $AC=\frac{۲HC}{\sqrt{۲}}$

$\frac{AB}{AC}=\frac{۱+\sqrt{۳}}{\sqrt{۲}}$

۵

$\frac{S_{\triangle ABE}}{S_{\triangle BCD}}=\frac{\sin B_۱\times\frac{۱}{۲}\times۲\times۴}{\sin B_۱\times\frac{۲}{۳}\times۶\times۳}=\frac{۴}{۹}$

$\sin B_۱=\sin B_۲=$ متقابل بر وتر

٦	(أ) $\sin 120 \times 4 \times 3 \times \frac{1}{2} = 6\sqrt{3}$ (ب) $\frac{\frac{1}{2} \times 3^2 \sin 60}{2} = \frac{\frac{1}{2} \times 3 \times 3}{2} = \frac{9\sqrt{3}}{4}$
٧	$\frac{y_2 - y_1}{x_2 - x_1} = \tan\alpha \Rightarrow \frac{3-(-1)}{3-1} = \frac{4}{2} = 2$ $\tan^2 + 1 = \frac{1}{\cos^2} \Rightarrow (2)^2 + 1 = \frac{1}{\cos^2}$ $\cos^2 = \frac{1}{5}$ $\cos = \pm\frac{1}{\sqrt{5}}$
٨	 $m = -\tan 60 = -\sqrt{3}$ $b = \frac{3}{2}$ $m \times b = -\sqrt{3} \times \frac{3}{2}$ $y = mx + b \Rightarrow y = x + \frac{3}{2} \Rightarrow \tan = 1 \quad \alpha = 45$
٩	$f\left(\frac{3\pi}{4}\right) = \cos\left(\frac{3\pi}{4} + \frac{7\pi}{4}\right) + \sin\left(-\frac{\pi}{2}\right) - \tan\left(\frac{\pi}{3}\right)$ $\frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} - \sqrt{3} = -\sqrt{3}$
١٠	$\frac{\sin\left(\frac{17\pi}{2} + x\right) + \cos\left(\frac{13\pi}{2} - x\right)}{\cos(3\pi + x) - \sin(2\pi - x)} = \frac{\sin\left(\frac{\pi}{2} + x\right) + \cos\left(\frac{3\pi}{2} - x\right)}{\cos(\pi + x) - \sin(2\pi - x)}$ $= \frac{\cos x - \sin x}{-\cos x - (-\sin x)} = -1$