۱۸,۵

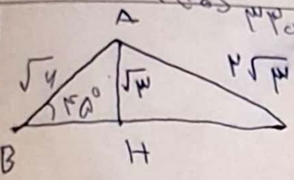
نام و نام خانوادگی: سید محمدحسین رجائی — پاسخنامه تشریحی تکلیف شماره ۱۰ — کلاس ۱۰ ریاضی ۴

الف) $(\sin 135^\circ + \sin 300^\circ)(\cos 315^\circ - \cos 150^\circ) = \frac{(\sqrt2-\sqrt3)(\sqrt2+\sqrt3)}{4} = \frac{2-3}{4}$

$\sin 135^\circ = \frac{\sqrt2}{2}$ ، $\sin 300^\circ = -\frac{\sqrt3}{2}$ ، $\cos 315^\circ - \cos 150^\circ = \frac{\sqrt2}{2} + \frac{\sqrt3}{2}$

$= -\frac{1}{4}$ ✓ (۲)

ب) $\frac{1+3\tan^2 210^\circ}{4\cos^2 330^\circ + 2\cos^2 225^\circ} = \frac{\left(\frac{\sqrt3}{3}\right)^2\times 3 + 1}{\left(\frac{\sqrt3}{2}\right)^2\times 4 + \left(-\frac{\sqrt2}{2}\right)^2\times 2} = \frac{1+1}{3+1} = \frac{1}{2}$ ✓

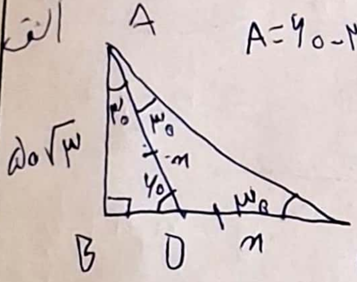


الف) $\Rightarrow \sqrt6 \times \sin 45^\circ = AH = \sqrt6 \times \frac{\sqrt2}{2} = \sqrt3$ (۲)

$HC^2 = (2\sqrt3)^2 - (\sqrt3)^2 = 12 - 3 = 9$

$\Rightarrow HC = \pm 3$; -3 غ ق ق ; $+3$ ق ق ✓

$HC = 3$

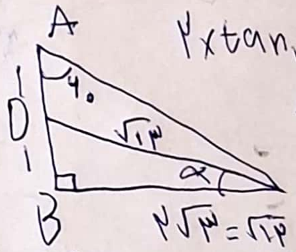


الف) $A = 90 - 30 = 30^\circ$; $\hat A = \hat C \Rightarrow DC = AD = x$

$50\sqrt3 \times \frac{1}{\cos 30^\circ} = \frac{50\sqrt3}{\frac{\sqrt3}{2}} = 100$

$x = 100$ ✓

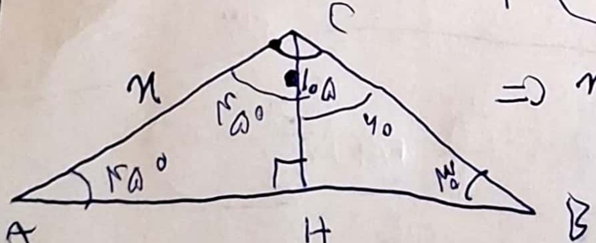
ب)



$2\times\tan 60^\circ = BC = 2\sqrt3$ (۲)

$DC^2 = \sqrt{12}^2 + 1^2 = 13 \Rightarrow DC = \pm\sqrt{13}$

$\Rightarrow \sin\alpha = \frac{1}{\sqrt{13}} = \frac{\sqrt{13}}{13}$ ✓



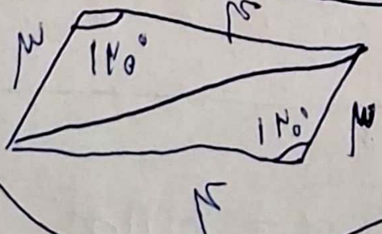
$\Rightarrow x \times \sin 45^\circ = CH = \frac{\sqrt2}{2}x$

$CH \times \tan 60^\circ = BH = \frac{\sqrt2}{2}x \times \sqrt3 = \frac{\sqrt6}{2}x$

$AH = x \times \cos 45^\circ = \frac{\sqrt2}{2}x$

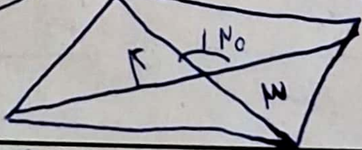
$AB = AH + BH = \frac{\sqrt2}{2}x + \frac{\sqrt6}{2}x = \frac{\sqrt2+\sqrt6}{2}x$

$\Rightarrow \frac{AB}{AC} = \frac{\frac{\sqrt2+\sqrt6}{2}x}{x} = \frac{\sqrt2+\sqrt6}{2}$ ✓ (۲) ۴



$S = 2\times(4\times3\times\sin 120^\circ)\times\frac12 = 6\sqrt3$ ✓ (۱,۵) ۶

مساحت مثلث



$S = \frac12\times 3\times4\times\sin 120^\circ = 12\times\frac{\sqrt3}{2} = 6\sqrt3$

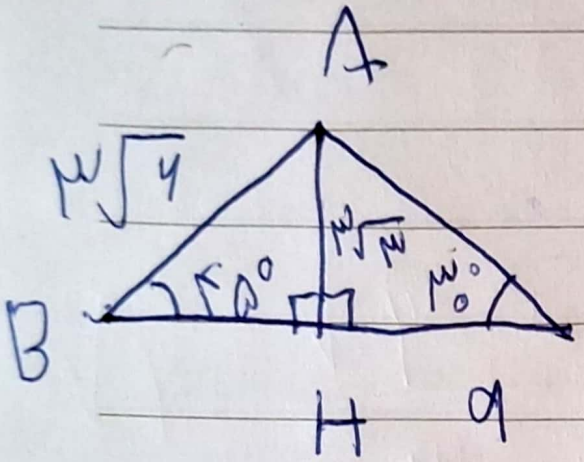
$S = \frac12 ab\sin\theta$

جواب سوال ۶

$3\sqrt3$

Subject : ..... Day : ..... Month : ..... Year : .....

جواب سوال ۲ ب)



$\Rightarrow \tan ۳۰ \times ۹ = AH = \frac{\sqrt{۳}}{۳} \times ۹ = ۳\sqrt{۳}$

$\sin \hat{B} = \frac{۳\sqrt{۳}}{۳\sqrt{۲}} = \frac{۱}{\sqrt{۲}} = \frac{\sqrt{۲}}{۲} \Rightarrow$

$B + A = ۹۰$

$\hat{B} = ۴۵^\circ$

$B = ۴۵^\circ$ یا ۱۳۵°

ولی چون B حاده است