۱۷,۷۵

نام و نام خانوادگی ...امیررضا اکبری... پاسخنامه تشریحی تکلیف شماره ...۲۰... کلاس ...دهم A...

۱ (۱,۵)

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

$\frac{\sqrt{3}}{2} \quad -\frac{\sqrt{3}}{2} \quad \frac{\sqrt{2}}{2} \quad -\frac{\sqrt{3}}{2}$

$\frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2} = \frac{\sqrt{2}-\sqrt{3}}{2}$ $\quad \frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2} = \frac{\sqrt{2}-\sqrt{3}}{2}$

$\frac{\sqrt{2}-\sqrt{3}}{2} \times \frac{\sqrt{2}+\sqrt{3}}{2} = \boxed{-\frac{1}{4}}$

$(\sqrt{2}-\sqrt{3})(\sqrt{2}-\sqrt{3})$

$2-\sqrt{6}-\sqrt{6}+3 \rightarrow 5-2\sqrt{6}$

~~$\frac{5-2\sqrt{6}}{2}$~~

ب) $3\tan^2 210° \rightarrow 1 \xrightarrow{+1} 2$

$4\cos^2 330° \rightarrow 3 \quad 2\cos^2 225° \rightarrow 1 \rightarrow 4$

$\frac{2}{4} = \frac{1}{2}$ ✓

۲ (۲)

$AH = \sin 45 \rightarrow \frac{\sqrt{2}}{2} = \frac{AH}{\sqrt{6}} \rightarrow AH = \sqrt{3}$

$AH = \frac{\sqrt{6}}{2}$ $= ($[illegible]$)^2 + (HC)^2 = 12$

$3 + (HC)^2 = 12$

$(HC)^2 = 9 \xrightarrow{\sqrt{}} HC = 3$ ✓

ب) $AH = \frac{1}{\sqrt{3}} = \frac{AH}{9} \Rightarrow AH = \frac{9}{\sqrt{3}}$

$\sin\beta = \frac{\frac{3\sqrt{3}}{\sqrt{3}}}{\frac{3\sqrt{6}}{1}} = \frac{3}{\sqrt{18}} \rightarrow \frac{3}{3\sqrt{2}} = \frac{1}{\sqrt{2}} \rightarrow \sin 45°$ ✓

۳ (۲)

الف) $BD = \frac{\sqrt{3}}{1} = \frac{50\sqrt{3}}{BD} \rightarrow BD = \frac{50\sqrt{3}}{\sqrt{3}} = 50$

$\tan 30° = \frac{1}{\sqrt{3}} = \frac{50\sqrt{3}}{50+x} = 50+x = 150$

$\boxed{x = 100}$ ✓

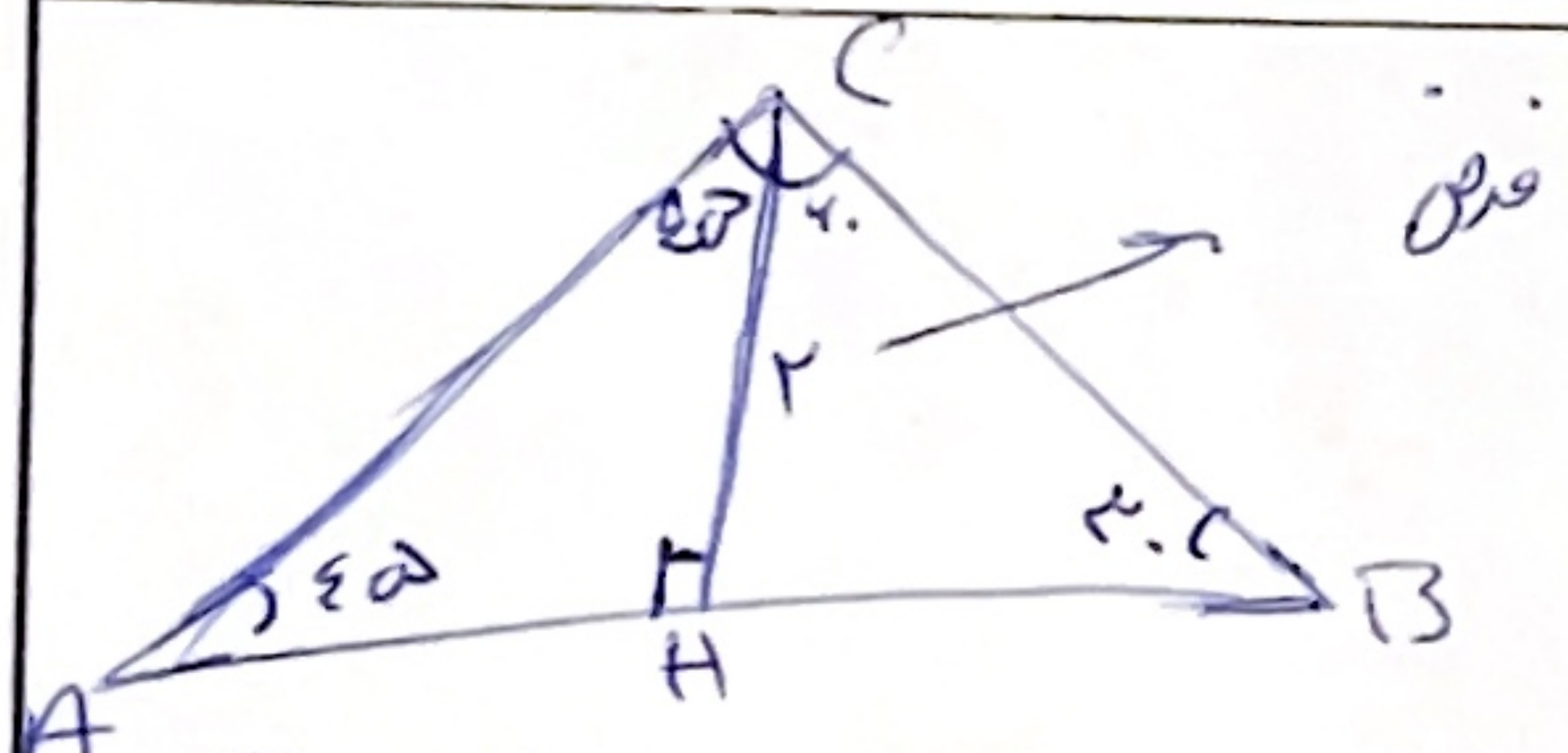
ب) $\tan 60° = \frac{\sqrt{3}}{1} = \frac{BC}{2}$ $\quad BC = 2\sqrt{3} \rightarrow DC^2 = 12+1$

$DC^2 = 13 \quad DC = \sqrt{13}$

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

$\frac{\sqrt{13}}{13}$ ✓

۴ (۰,۵)



$AH = \frac{\sqrt{2}}{2} = \frac{AH}{\frac{4\sqrt{2}}{2}}$ $\quad AH = 2$

$\frac{6}{3} + \frac{2\sqrt{3}}{3} \rightarrow \frac{6+2\sqrt{3}}{3}$

$\frac{\frac{6+2\sqrt{3}}{3}}{\frac{4\sqrt{2}}{2}}$

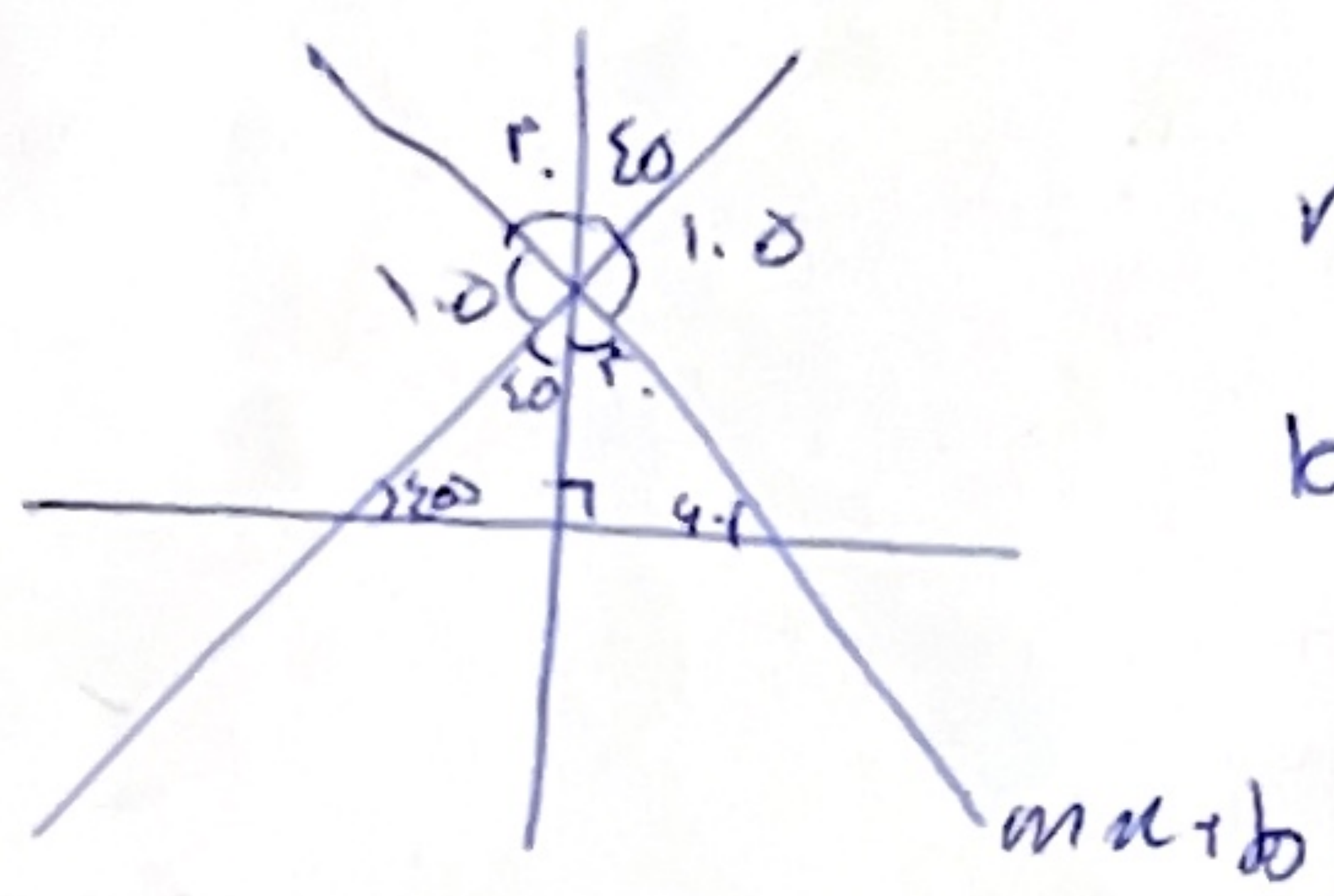
$\frac{12+4\sqrt{3}}{12\sqrt{2}}$ $\quad \frac{4(3+\sqrt{3})}{\frac{12\sqrt{2}}{3}}$

~~$\frac{3+\sqrt{3}}{3\sqrt{2}}$~~

$\frac{\sqrt{2}}{2} = \frac{2}{AC}$ $\quad AC = \frac{4}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{4\sqrt{2}}{2}$ $\quad HB = \rightarrow \frac{\sqrt{3}}{1} = \frac{2}{HB}$ $\quad HB = \frac{2}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$

۵ (۲)

$\frac{S_{ABE}}{S_{BCD}} \rightarrow \frac{\sin B \times \frac{1}{2} \times 2 \times 4}{\sin B \times \frac{1}{2} \times 6 \times 3} = \frac{4}{9}$ ✓

الف) $\sin 120 \times 4 \times 3 \times \frac{1}{2} \times 2 = 12 \times \frac{\sqrt{3}}{2} = 6\sqrt{3}$ ✓ $\frac{\sin 120 \times 3 \times 4}{2} = \frac{\sqrt{3}}{2} \times 2 \times 3 = \frac{6\sqrt{3}}{2} = 3\sqrt{3}$ ✓	(۲)	۶
$\frac{y_2-y_1}{x_2-x_1} = \tan \rightarrow \frac{4-2}{3+1} \rightarrow \frac{1}{2}$ $\tan^2 + 1 = \frac{1}{\cos^2} \rightarrow (\frac{1}{2})^2 + 1 = \frac{1}{\cos^2}$ $\quad \cos^2 = \frac{4}{5}$ $\quad \cos = \pm\frac{2}{\sqrt{5}}$ دقت θ حاده است	(۱,۷۵)	۷
 $m = -\tan 60 = -\sqrt{3}$ ✓ $\quad m \times b = -\sqrt{3} \times \frac{5}{2}$ ✓ $b = \frac{5}{2}$ ✓ $\alpha = 45$ $2y = 2x + 5 \rightarrow y = x + \frac{5}{2} \Rightarrow \tan = 1$	(۲)	۸
$f(\frac{5\pi}{4}) = \cos(\frac{5\pi}{4} + \frac{4\pi}{4}) + \sin(\frac{\pi}{3}) - \tan(\frac{7\pi}{2})$ $225^\circ \quad 30^\circ \quad 90^\circ$ $\frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} - \sqrt{3} = \longrightarrow -\sqrt{3}$ ✓	(۲)	۹
$\frac{\sin(\frac{17\pi}{2}+x) + \cos(\frac{15\pi}{2}-x)}{\cos(3\pi+x) - \sin(6\pi-x)} = \frac{\sin(\frac{\pi}{2}+x) + \cos(\frac{3\pi}{2}-x)}{\cos(\pi+x) - \sin(2\pi-x)}$ -1 $\Longrightarrow \frac{\cos x - \sin x}{-\cos x - (-\sin x)} = -1$ ✓ دقت !	(۲)	۱۰

$-1 \quad +\sin x$

$$AC = x \rightarrow \begin{cases} AH^2 + CH^2 = x^2 \\ AH = CH = \frac{\sqrt{2}}{2}x \end{cases}$$

-۴

$$\tan 15^\circ = \frac{\frac{\sqrt{2}}{2}x}{BH} \rightarrow BH = \frac{\sqrt{6}}{2}x \rightarrow AB = BH + AH = \left(\frac{\sqrt{6}+\sqrt{2}}{2}\right)x$$

$$\frac{AB}{AC} = \frac{x(\sqrt{6}+\sqrt{2})}{2x} = \boxed{\frac{\sqrt{6}+\sqrt{2}}{2}}$$