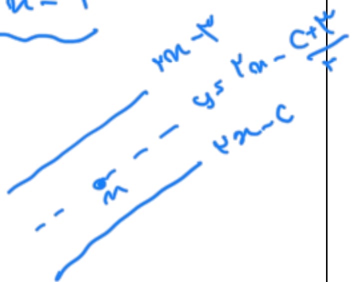
نام و نام خانوادگی ....بیتا عمری.... پاسخنامه تشریحی تکلیف شماره ....۱۴.... کلاس ....یازدهم دفتری....

۱	$m_{AB} = \frac{y_B - y_A}{x_B - x_A} = \frac{8-(-6)}{2-4} = \frac{-14}{2} = -7 \xrightarrow[\text{عمود منصف}]{\text{عکس و قرینه}} m = \frac{1}{7}$ $M \begin{vmatrix} \frac{2+4}{2} = 3 \\ \frac{8-6}{2} = 1 \end{vmatrix} \rightarrow y - y_M = m(x - x_M) \rightarrow y - 1 = \frac{1}{7}(x-3) \rightarrow y = \frac{1}{7}x + \frac{4}{7}$
۲	AH → CB فاصله A از خط $m_{BC} = \frac{3-7}{-1-(-4)} = -\frac{4}{3} \rightarrow y - y_B = m(x - x_B)$ $\rightarrow y - 7 = \frac{-4}{3}(x+4) \rightarrow y = \frac{-4}{3}x + \frac{5}{3} \xrightarrow{\times 3} 3y = -4x + 5 \rightarrow 3y + 4x - 5 = 0$ $AH = \frac{\lvert 3\times 1 + 4\times 3 - 5 \rvert}{\sqrt{3^2+4^2}} = \frac{10}{5} = 2$ $BC = \sqrt{(x_C - x_B)^2 + (y_C - y_B)^2} = \sqrt{3^2+4^2} = 5$ $BC - AH = 5 - 2 = 3$
۳	$2y - x - 7 = 0 \xrightarrow{\times 2} \begin{cases} 4y - 2x - 14 = 0 \\ 4y - 2x - 2 = 0 \end{cases} \rightarrow 2r = \frac{\lvert c - c' \rvert}{\sqrt{a^2+b^2}} = \frac{\lvert -2-(-14) \rvert}{\sqrt{16+4}} = \frac{12}{\sqrt{20}} = \frac{6}{\sqrt{5}}$ (قطر) $\rightarrow r = \frac{3}{\sqrt{5}} \rightarrow S = \pi r^2 = \pi \times \left(\frac{3}{\sqrt{5}}\right)^2 = \frac{9}{5}\pi$
۴	$M = \begin{vmatrix} \frac{2+4}{2} = 3 \\ \frac{1+3}{2} = 2 \end{vmatrix}$ $m_{AB} = \frac{1-3}{4-2} = -1 \rightarrow m_{CH} = +1$ $CH \rightarrow y - y_C = m(x - x_C) \rightarrow y + 3 = x + 1 \rightarrow y = x - 2$ $y - 3 = -1(x-2) \rightarrow y = -x + 5 \rightarrow x - 2 = -x + 5 \rightarrow 2x = 7 \rightarrow x = \frac{7}{2} \rightarrow y = \frac{3}{2}$ $H(\frac{7}{2}, \frac{3}{2})\ M(3,2) \rightarrow MH = \sqrt{(y_H - y_M)^2 + (x_H - x_M)^2} = \sqrt{(\frac{1}{2})^2 + (\frac{1}{2})^2} = \frac{\sqrt{2}}{2}$
۵	$(3m-2)x + (5-m)y - 7 = 0 \rightarrow m_1 = \frac{-(3m-2)}{5-m} = \frac{3m-2}{m-5}$ $(m+1)x - (2m-4)y + 1 = 0 \rightarrow m_2 = \frac{-(m+1)}{-(2m-4)} = \frac{m+1}{2m-4}$ عمود $\rightarrow m_1 \times m_2 = -1 \rightarrow \frac{3m-2}{m-5} \times \frac{m+1}{2m-4} = -1 \rightarrow \frac{3m-2}{m-5} = \frac{-2m+4}{m+1}$ $\rightarrow 3m^2 - 2m + 3m - 2 = -2m^2 + 4m + 10m - 20 \rightarrow 5m^2 - 13m + 18 = 0 \rightarrow \Delta < 0$ ← نمی‌توانند بر هم عمود باشند

($x+2y=3$) AB, AC $\to -\frac{1}{2}x_A+\frac{3}{2}=2x_A-1 \to \frac{5}{2}x_A=\frac{5}{2} \to x_A=1,\ y_A=1$ AB, BC $\to -x_B+4=-\frac{1}{2}x_B+\frac{3}{2} \to \frac{1}{2}x_B=\frac{5}{2} \to x_B=5,\ y_B=-1$ AC, BC: $2x_C-1=-x_C+4 \to 3x_C=5 \to x_C=\frac{5}{3},\ y_C=\frac{7}{3}$ $M\left|\begin{array}{l}\frac{5+\frac{5}{3}}{2}=\frac{10}{3}\\ \frac{\frac{7}{3}-1}{2}=\frac{2}{3}\end{array}\right. \to AM=\sqrt{(\frac{1}{3})^2+(\frac{7}{3})^2}=\sqrt{\frac{50}{9}}=\frac{5\sqrt{2}}{3}$ $\to AH=\frac{\lvert 1+1-4\rvert}{\sqrt{2}}=\frac{2}{\sqrt{2}}=\sqrt{2}$ $\to \frac{AM}{AH}=\frac{\frac{5\sqrt{2}}{3}}{\sqrt{2}}=\frac{5}{3}$	۶
$d: y=-\frac{1}{2}x+b \xrightarrow{A(a,0)} 0=-\frac{1}{2}a+b \to b=\frac{1}{2}a \to a=2b$ فاصله: $\frac{\lvert b\rvert}{\sqrt{1+\frac{1}{4}}}=\frac{\lvert b\rvert}{\frac{\sqrt{5}}{2}}=\sqrt{20} \to \lvert b\rvert=5 \to AB=\sqrt{a^2+b^2}=\sqrt{25+10\cdots}$ $=\sqrt{125}=5\sqrt{5}$	۷
$\begin{cases} my-4x=2m \to y=\frac{4}{m}x+2 \\ y+mx=x+2 \to y=(1-m)x+2 \\ y=0 \end{cases}$ $\xrightarrow{\text{ارتفاع}} (0,2) \to y_B=\frac{4}{m}x_B+2=0 \to \frac{4}{m}x_B=-2 \to x_B=-\frac{m}{2},\ y_B=0$ $y_C: 0=(1-m)x_C+2 \to x_C=\frac{2}{m-1},\ y_C=0$ $\to S=\frac{\text{قاعده}\times 2}{2} \to$ قاعده: $\lvert x_B-x_C\rvert=\frac{5}{2} \to \left\lvert\frac{2}{m-1}+\frac{m}{2}\right\rvert=\frac{5}{2} \to \left\lvert\frac{4+m^2-m}{2m-2}\right\rvert=\frac{5}{2}$ $\to \frac{m^2-m+4}{2m-2}=\frac{5}{2} \to m^2-m+4=5m-5 \to m^2-6m+9=0 \to m=3$ $\to \frac{m^2-m+4}{2m-2}=\frac{-5}{2} \to -5m+5=m^2-m+4 \to m^2+4m-1=0 \to P=-1$ $P'=-1\times 3=-3$ حاصلضرب کل مقادیر	۸
$m=-2=4-\frac{c+3}{2} \to \frac{c+3}{2}=6 \to c=9 \to d_2=2x-9$ در دو خط موازی $y=2x-3 \to y=2x-\frac{c+3}{2}$ 	۹
$m_d=1 \to m_{AA'}=-1 \to y-y_A=-1(x-x_A) \to y-2=-x+1$ $\to y=-x+3$ تقاطع AA' و d: $M \to x+5=-x+3 \to x=-1,\ y=4$ $M\left\lvert\begin{array}{l}\frac{a+1}{2}=-1 \to a=-3\\ \frac{b+2}{2}=4 \to b=6\end{array}\right. \to 2b-a=12-(-3)=12+3=15$	۱۰