آقای کریم زاده - یازدهم ریاضی B - تکلیف ۱۶

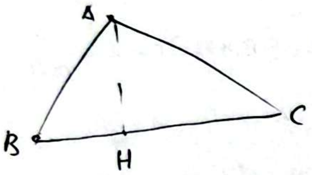
۱-

$A(4,-6)$, $B(2,8)$ $\rightarrow \frac{8+6}{2-4} = \frac{14}{-2} = -7 \sim$ شیب $\qquad -7 \times a = -1 \rightarrow \frac{1}{7}$

$M \left| \frac{4+2}{2} = 3, \ \frac{8-6}{2} = 1 \right.$ $\qquad y = \frac{1}{7}x + b \xrightarrow{M|3,1} 1 = \frac{3}{7} + b \rightarrow \frac{4}{7} \rightarrow y = \frac{1}{7}x + \frac{4}{7}$

۲-

$A(3,1)$, $B(-4,7)$, $C(-1,3)$ $\qquad BC = \sqrt{(-1+4)^2+(3-7)^2} = 5$



$\frac{AH \times BC}{2} =$ مساحت $\rightarrow \frac{1}{2}\begin{vmatrix} 3 & 1 & 1 \\ -4 & 7 & 1 \\ -1 & 3 & 1 \end{vmatrix} \rightarrow \frac{1}{2}\left|\overbrace{(21+(-12)-1)}^{8} - \overbrace{(-7+9-4)}^{-2}\right| = \frac{1}{2}(10) = 5$

$\frac{AH \times 5}{2} = 5 \rightarrow AH = 2$ ✓ $\rightarrow 5-2 = 3$ تا بیشتر است

۳-

$4y - ax - 2 \rightarrow 2y - x - 1 = 0$

$2y - x = 7 \rightarrow 2y - x - 7 = 0$

$\sim \frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{|-1+7|}{\sqrt{4+1}} = \frac{6}{\sqrt{5}} \sim$ قطر دایره $\qquad \pi r^2 = \pi\left(\frac{3}{\sqrt{5}}\right)^2 = \frac{9\pi}{5}$

۴-

$A(2,3)$, $B(4,1)$, $C(-1,-3)$ $\rightarrow M \left| \frac{2+4}{2} = 3, \ \frac{3+1}{2} = 2 \right.$

$\rightarrow BA \sim \frac{3-1}{2-4} = -1 \rightarrow y = -x+5$ $\qquad CH \sim y = x+b \xrightarrow{(-1,-3)} -3 = -1 + (-2) \rightarrow y = x-2$

$\begin{cases} y = x-2 \\ y = -x+5 \end{cases} \rightarrow x-2 = -x+5, \ 2x = 7$

$H \ \boxed{x = \frac{7}{2}, \ y = \frac{3}{2}}$

$MH \rightarrow \sqrt{\left(3-\frac{7}{2}\right)^2 + \left(\frac{4-3}{2}\right)^2} = \sqrt{\frac{2}{4}} = \boxed{\frac{\sqrt{2}}{2}}$

۵-

$(m+1)x - (2m-4)y + 1 = 1 \rightarrow a = \frac{m+1}{2m-4}$

$(3m+2)x + (5-m)y - 7 = 0 \rightarrow a' = \frac{3m+2}{m-5}$

$\frac{2m-4}{m+1} = \frac{3m+2}{5-m} \rightarrow 2m^2\ 2m + 3m \cdot 2 = -3m^2 + 4m + 10m - 20$

$0 = 5m^2 - 13m + 18 \rightarrow \Delta < 0$

نمی‌توانند عمود باشند ~

۶-

$AB: x + 2y = 3 \rightarrow y = -\frac{1}{2}x + \frac{3}{2}$

$AC: y = 2x - 1$

$BC: y = -x + 4$

$A: 2x - 1 = -\frac{1}{2}x + \frac{3}{2} \rightarrow \frac{5}{2}x = \frac{5}{2} \rightarrow x = 1, \ y = 1$

$B: -\frac{1}{2}x + \frac{3}{2} = -x + 4 \rightarrow \frac{1}{2}x = \frac{5}{2} \rightarrow x = 5, \ y = -1$

$C: 2x - 1 = -x + 4 \rightarrow x = \frac{5}{3}, \ y = \frac{7}{3}$

$\frac{BC}{2} \rightarrow M \left| \frac{5+\frac{5}{3}}{2} = \frac{10}{3}, \ \frac{\frac{7}{3}-1}{2} = \frac{2}{3} \right.$ $\rightarrow AM = \sqrt{\left(\frac{10}{3}-1\right)^2 + \left(\frac{2}{3}-1\right)^2} = \frac{\sqrt{50}}{3}$

$a_{BC} \rightarrow \frac{\frac{7+3}{3}}{\frac{5-15}{3}} = -1 \qquad y = -x + 4 \qquad a_{AH} = 1 \rightarrow y = x$

$-x + 4 = x \rightarrow \boxed{x = 2, \ y = 2}$

$AH = \sqrt{(2-1)^2 + (2-1)^2} = \sqrt{2}$

$\rightarrow \frac{\frac{\sqrt{50}}{3}}{\sqrt{2}} = \boxed{\frac{5}{3}}$ ✓

۷-

$y=-\frac{1}{2}x+b \rightarrow y+\frac{1}{2}x-b=0 \rightarrow \frac{|-b|}{\sqrt{1+\frac{1}{4}}}=\frac{|b|}{\frac{\sqrt{5}}{2}} \rightarrow \frac{2|b|}{\sqrt{5}}=\sqrt{20} \rightarrow |b|=5$

$b=\pm 5$

$\xrightarrow{x=0} y=\pm 5$

$\xrightarrow{y=0} \frac{1}{2}x=\pm 5 \rightarrow x=\pm 10$

$\rightarrow \sqrt{(10)^2+(5)^2}=\sqrt{125}=\boxed{5\sqrt{5}}$

۸-

$my=4x+2m \rightarrow y=\frac{4}{m}x+2$

$y=(1-m)x+2$

$\rightarrow \frac{4}{m}x+2=(1-m)x+2 \rightarrow \frac{4}{m}x=(1-m)x$

$\rightarrow \frac{4}{m}=1-m \rightarrow 4=m-m^2 \rightarrow m^2-m+4 \rightarrow \Delta<0$

جواب ندارد

۹-

$y=2x-4 \rightarrow y'-2=2(x'+2)-4 \rightarrow y'-2=2x'+4-4 \rightarrow \underline{y'=2x'+2}$

$m\left|\begin{matrix}2\\-2\end{matrix}\right. \rightarrow x'=x-2 \rightarrow x=x'+2$

$y'=y+2 \rightarrow y=y'-2$

۱۰-

$A(1,2) \rightarrow A'A \rightarrow \left| \begin{matrix} \frac{a+1}{2}=-1 \\ \frac{b+2}{2}=4 \end{matrix} \right. \rightarrow \begin{matrix} a=-3 \\ b=6 \end{matrix} \rightarrow 2b-a=\boxed{15}$

$y=x+5$

$\hookrightarrow y'=-x+3 \rightsquigarrow -x+3=x+5 \rightarrow -2x=2 \rightarrow x=-1$

$y=4$