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

۱

$A(4,-4)$ ، $B(2,8)$: معادله‌ی عمود منصف

$M = \left| \frac{4+2}{2} = 3 \right.$ ، $\left. \frac{-4+8}{2} = 1 \right.$ ← $(3,1)$

$m = \frac{-4-8}{4-2} = -6 \longrightarrow m' = \frac{-1}{m} = \frac{1}{6}$

$y - y_0 = m'(x - x_0) : y - 1 = \frac{1}{6}(x-3) : y = \frac{1}{6}x + \frac{3}{2}$

۲

$A(3,1)$ ، $B(-4,6)$ ، $C(-1,3)$ ← $\triangle ABC$: $d_{BC} - d_{AH} = ?$

$d_{BC} = \sqrt{9+16} = 5$

$m_{BC} = \frac{6-3}{-4+1} = \frac{3}{-3} = -1$ ← $y - 3 = -1(x+1) : y = -x + 2$: $x + y - 2 = 0$

$d_{AH} = \frac{|3+1-2|}{\sqrt{1+1}} = \frac{2}{\sqrt{2}} = \sqrt{2}$

$d_{BC} = \sqrt{9+16} = 5$

$\Rightarrow 5 - \sqrt{2} = 3$

۳

$4y = ax + 2$ ، $x - y = 1$

$\Rightarrow \begin{cases} 4y - ax = 2 \\ 4y - 4x = 16 \end{cases}$ $\Rightarrow$ فاصله $= d = \frac{|16-2|}{\sqrt{16+4}} = \frac{14}{\sqrt{20}}$

$\Rightarrow \frac{14}{\sqrt{20}} = \frac{7}{\sqrt{5}}$ ← $(\text{شعاع})^2$

$\Rightarrow S = 12\pi \rightarrow \frac{9}{5}\pi$

۴

$A(2,3)$ ، $B(-1,-3)$ ، $M(3,2)$ ، $H(4,1)$

$m_{AB} = \frac{3+3}{2+1} = 2$ ← $y - 1 = -(x-4) \Rightarrow y = -x + 5$: $x + y - 5 = 0$

$d_{CH} = \frac{|4+4-5|}{\sqrt{2}} = \frac{9}{\sqrt{2}}$

$M = \left| \frac{2+4}{2} = 3 \right.$ ، $\left. \frac{3+1}{2} = 2 \right.$: $M(3,2)$ ← $d_{CM} = \sqrt{16+25} = \sqrt{41}$

$\Rightarrow x = \sqrt{41 - \frac{81}{2}} = \frac{\sqrt{2}}{2}$: HM طول

۵

$(2m-2)x + (5-m)y - 7 = 0$

$(m+1)x - (2m-4)y + 1 = 0$

$\longrightarrow a = \frac{-2m+2}{5-m}$

$\longrightarrow a' = \frac{m+1}{2m-4}$

m چند $= ?$

$\Rightarrow a \cdot a' = -1 : \frac{-2m+2}{5-m} \times \frac{m+1}{2m-4} = -1$

$\Rightarrow -2m^2 - m + 2 = 2m^2 - 14m + 20 : 4m^2 - 13m + 18 = 0 \rightarrow \Delta < 0$

$\Rightarrow$

به ازای هیچ مقدار m ای این ۲ خط بر هم عمود نیستند!

$y=2x-1$ ۱) $2x-1=4-x \rightarrow 3x=5 \rightarrow x=\frac{5}{3}, y=\frac{7}{3} \rightarrow (\frac{5}{3},\frac{7}{3})$

$\frac{AM}{AH}=?$ ۲) $2-x=1-2x \rightarrow x=0, y=-1 \rightarrow B(0,-1)$

$\Rightarrow AM=\sqrt{(1-\frac{1}{3})^2+(1-\frac{2}{3})^2}=\sqrt{\frac{4}{9}+\frac{1}{9}}=\frac{\sqrt{5}}{3}$

$\Rightarrow M\left|\begin{array}{l}\frac{0+2}{2}=\frac{1}{3}\\ \frac{-1+2}{2}=\frac{1}{2}\end{array}\right. : M(\frac{1}{3},\frac{1}{2})$

$AH=\frac{|1+1+1|}{\sqrt{2}}=\sqrt{3}$

$\Rightarrow \frac{AM}{AH}=\frac{\sqrt{5}/3}{\sqrt{3}}=\frac{\sqrt{5}}{3}$ ۶

شیب $m=\frac{-1}{2}$

فاصله $=\frac{|1+2+2c|}{\sqrt{1^2+2^2}}=\sqrt{5}$ $\rightarrow \sqrt{1+\frac{1}{4}}$

$\Rightarrow |c|=5 \rightarrow c=\pm 5$

$y=-\frac{1}{2}x+c$

$\Rightarrow \begin{cases} A: y=0 \rightarrow x=2c \quad (2c,0) \\ B: x=0 \rightarrow y=c \quad (0,c) \end{cases}$

$\Rightarrow d_{AB}=\sqrt{4c^2+c^2}=\sqrt{5c^2}=5\sqrt{5}$ ۷

$my-4x=4m \Rightarrow \begin{cases} x=0 \rightarrow y=4 \\ y=0 \rightarrow x=\frac{-m}{2} \end{cases}$

$y+mx=x+4 \Rightarrow \begin{cases} x=0 \rightarrow y=4 \\ y=0 \rightarrow x=\frac{4}{m-1} \end{cases}$

$x(m-1)=4$

$\frac{\left(\frac{-m}{2}-\frac{4}{m-1}\right)\times 2}{2}=\frac{5}{2} : \frac{-m(m-1)-4}{2(m-1)}=\frac{5}{2} \Rightarrow -m^2+m-4=5m-5$

$\Rightarrow m^2+4m-1=0 \rightarrow P=\frac{c}{a}=\frac{-1}{1}$ ۸

$y=2x-4 \xrightarrow{\text{قرینه}} M(0,-4)$

$\Rightarrow x'=3-x \quad : x=3-x' \quad \Rightarrow -3-y'=2(3-x')-4$

$\Rightarrow y'=-3-y \quad : y=-3-y' \quad \Rightarrow y'=2x'-9$

۹

$A(1,2) \xrightarrow{\text{قرینه}} y=x+a \rightarrow A'(a,b) : 2b-a=?$

$y=x+a$ $(a=1)$

$m_{AA'}=-1$

$\Rightarrow y=y : -x+2=x+a \rightarrow x=-1, y=3$

$\Rightarrow O(-1,3)$

$y-2=-1(x-1) \rightarrow y=-x+3$

$m_{A'}+1=-2 \rightarrow m_{A'}=-3$

$y_{A'}+2=8 \rightarrow y_{A'}=6$

$A'(-3,6) \Rightarrow \begin{cases} a=-3 \\ b=6 \end{cases} \Rightarrow 2b-a=\underline{18}$

۱۰