

$$\text{مستقيم } M \begin{vmatrix} 1 \\ 1 \end{vmatrix} \begin{matrix} 3 \\ 1 \end{matrix} \text{ , } m = \frac{1+9}{-2} = -5 \xrightarrow{\text{مستقيم } AB} m' = \frac{1}{5} \Rightarrow y = m'x + b \quad (1)$$

$$\hookrightarrow y = \frac{1}{5}x + b \xrightarrow{1} 1 = \frac{1}{5} + b \rightarrow b = \frac{4}{5} \Rightarrow y = \frac{1}{5}x + \frac{4}{5}$$

$$BC = \sqrt{\Delta y^2 + \Delta x^2} = \sqrt{4+16} = \omega \text{ , } m_{BC} = \frac{V-1^u}{-1^u+1} = \frac{-4}{2} \quad (2)$$

$$y = \frac{-4}{2}x + b \xrightarrow{1^u} \frac{-4}{2}x + b = 1^u \rightarrow \frac{\omega}{2} = b \Rightarrow y = \frac{-4}{2}x + \frac{\omega}{2} \rightarrow 2y + 4x - \omega = 0$$

$$\hookrightarrow \text{BC و A المسافة} \quad AH = \frac{|ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}} = \frac{|1(1) + 2(1) - \omega|}{\sqrt{4+16}} = \frac{1-\omega}{\omega} = 2 \rightarrow BC - AH = 3$$

$$\text{نفسه} \rightarrow m = m' \rightarrow \begin{cases} 4y - ax - 2 = 0 \\ 1^u y - 2x - 1^u = 0 \end{cases} \Rightarrow a = 2 \quad \begin{matrix} \text{نفسه دائرة مركزها نقطة} \\ \text{نفسه دائرة مركزها نقطة} \end{matrix} \quad (3)$$

$$\text{المسافة} \quad d = \frac{|C - C'|}{\sqrt{a^2 + b^2}} \Rightarrow \frac{1 - 2 + 1^u}{\sqrt{16+4}} = \frac{1^u}{\sqrt{20}} = 2r \rightarrow r = \frac{1^u \sqrt{5}}{\omega}$$

$$S = \pi r^2 = \frac{9R}{\omega}$$

$$\text{AB و M} \begin{vmatrix} 1 \\ 1 \end{vmatrix} \begin{matrix} 3 \\ 1 \end{matrix} \text{ , } M_{AB} = \frac{1}{-1} = -1 \rightarrow M_{HC} = 1 \Rightarrow y = ax + b \Rightarrow y = x + b \quad (4)$$

$$\hookrightarrow 1 - 1^u \rightarrow -1 + b = -1^u \Rightarrow b = -1^u \Rightarrow y = x - 1^u \rightarrow y - x + 1^u = 0$$

$$d = \frac{|-x_1 + y_1 + 1^u|}{\sqrt{1+1}} \xrightarrow{1^u} \frac{1 - 1^u + 1^u + 1^u}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

Subject
Date

مبحث هندسه

$$(5-m)y + (13m-1)x - 1 = 0 \Rightarrow a = \frac{-13m+1}{5-m} \rightarrow \text{نقطه } (1,1) \text{ در خط}$$

$$-(13m-1)y + (m+1)x + 1 = 0 \Rightarrow a' = \frac{m+1}{13m-1} \rightarrow \text{نقطه } (1,1) \text{ در خط}$$

(5)

$$\frac{-13m+1}{5-m} = \frac{m+1}{13m-1} \rightarrow -13m^2 - m + 1 = 13m^2 - 14m + 1$$

$$\rightarrow 26m^2 - 13m + 1 = 0 \rightarrow \Delta = (13)^2 - 4(26)(1) < 0 \Rightarrow \text{خط } m \text{ و } n \text{ موازی و متمم هستند}$$

$$AC, AB \text{ به هم برخورد } A \rightarrow \begin{cases} x+2y=13 \\ 2y-4x=-1 \end{cases} \rightarrow x=1, y=1 \Rightarrow A(1,1)$$

(6)

$$BC, AB \text{ به هم برخورد } B \rightarrow \begin{cases} x+2y=13 \\ x+y=4 \end{cases} \rightarrow y=-1, x=5 \Rightarrow B(5,-1)$$

$$BC, AC \text{ به هم برخورد } C \rightarrow \begin{cases} y-2x=-1 \\ x+y=4 \end{cases} \rightarrow x=\frac{5}{3}, y=\frac{7}{3} \Rightarrow C(\frac{5}{3}, \frac{7}{3})$$

$$BC \text{ وسط } M \left(\frac{\frac{5}{3}+5}{2}, \frac{\frac{7}{3}-1}{2} \right) \rightarrow AM = \sqrt{(\frac{5}{3}-1)^2 + (\frac{7}{3}-1)^2} = \sqrt{\frac{20}{9}} = \frac{2\sqrt{5}}{3}$$

$$AH = \frac{|1+1-4|}{\sqrt{1+1}} = \sqrt{2} \Rightarrow \frac{AM}{AH} = \frac{2}{\sqrt{2}} = \sqrt{2}$$

$$\text{فاصله از مرکز} \rightarrow \sqrt{2} = \frac{|ax_1+by_1+c|}{\sqrt{a^2+b^2}} \quad y = -\frac{1}{2}x + c \rightarrow \frac{|c|}{\frac{\sqrt{5}}{2}} \Rightarrow |c| = \frac{\sqrt{5}}{2} = 5 \quad (7)$$

$$|c|=5 \quad 0 = -\frac{1}{2}x + 5 \Rightarrow x = 10 \Rightarrow AB = \sqrt{1+4} = \sqrt{5}$$

$$|c|=-5 \quad 0 = -\frac{1}{2}x - 5 \Rightarrow x = -10$$

معمولی

$$my - kx = ym \rightarrow y = \frac{k}{m}x + y$$

$$y + mx = x + y \rightarrow y = (1-m)x + y$$

(1)

$$\begin{cases} 0 = \frac{k}{m}x_B + y \Rightarrow x_B = -\frac{m}{k}y \\ 0 = (1-m)x_C + y \Rightarrow x_C = \frac{y}{m-1} \end{cases} \rightarrow A|_y, B|_{-\frac{m}{k}y}, C|_{\frac{y}{m-1}}$$

$$S = \frac{|x_B - x_C| \times y}{y} = \frac{\Delta}{y} = \left| \frac{y}{m-1} + \frac{m}{k}y \right| \Rightarrow \frac{k + m^2 - m}{ym - k} = \frac{\Delta}{y}$$

$$\rightarrow m^2 - m + k = \Delta m - \Delta \Rightarrow m^2 - 4m + 4 = 0 \Rightarrow m = 2$$

$$\rightarrow -\Delta m + \Delta = m^2 - m + k \Rightarrow m^2 + km - 1 = 0 \Rightarrow \rho = -1 \left(\frac{c}{a} = -1 \right)$$

$$\Rightarrow \text{محور عمودی} = k \times (-1) = -k$$

$$m \text{ معلوم: } k - \frac{C+k}{y} = -y \Rightarrow C+k = 1y \Rightarrow C = 9$$

(9)

$$d_1: y = 2x - k, d_2: y = 2x - \frac{C+k}{y} \xrightarrow{\text{مساوی}} d_2: y = 2x - \frac{C+k}{y}$$

$$C' = \frac{-(C+k)}{y} \xrightarrow{\text{مساوی}} d_1, d_2, m \text{ معلوم} \Leftarrow m = 2 \Leftarrow d_2 \text{ معلوم} \Leftarrow m \text{ معلوم} \Leftarrow d_1 \text{ معلوم}$$

$$y - y_A = -1(x - x_A) \Rightarrow y - y = -x + 1 \Rightarrow y = -x + 1$$

(1)

$$AA' \text{ و } d \text{ بر مبنای } m \rightarrow x + a = -x + 1 \Rightarrow x = -1, y = k$$

$$AA' \text{ و } m \rightarrow x_m = \frac{a+1}{y} = -1 \Rightarrow a = -k \text{ و } y_m = \frac{b+k}{y} = k \Rightarrow b = 6$$

$$\Rightarrow kb - a = 1k + k = 1a$$