

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) = \left(\frac{1 + 3}{2}, \frac{-6 + 1}{2} \right) = (2, -\frac{5}{2})$$

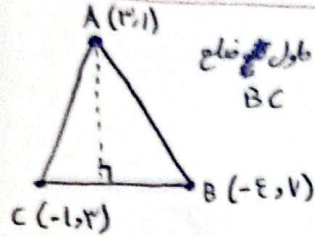
$$m_1 = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - (-6)}{3 - 1} = \frac{7}{2}$$

$$m_1 \times m_r = -1 \Rightarrow \frac{7}{2} \times m_r = -1 \Rightarrow m_r = -\frac{2}{7}$$

$$L_r \Rightarrow y = -\frac{2}{7}x + b \xrightarrow{\text{نقطه}} 1 = -\frac{2}{7}(3) + b \Rightarrow b = \frac{13}{7}$$

$$\hookrightarrow L_r \Rightarrow y = -\frac{2}{7}x + \frac{13}{7} \quad \checkmark$$

(۲)



$$\text{طول } BC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{(-1 - (-4))^2 + (3 - 1)^2} = \sqrt{3^2 + 2^2} = \sqrt{13}$$

A(3, 1)

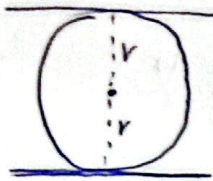
$$\Rightarrow \frac{|ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}} = \frac{|3 + 12 - 5|}{\sqrt{3^2 + 2^2}} = \frac{10}{\sqrt{13}} = \frac{10\sqrt{13}}{13}$$

$$\text{خواسته} \Rightarrow \omega - 2 = 3 \quad \checkmark$$

(۳)

$$2y - x = 1, \quad \varepsilon y = ax + 2 \Rightarrow \text{موازی} \Rightarrow m_1 = m_2 \Rightarrow \frac{1}{2} = \frac{a}{\varepsilon} \Rightarrow a = \frac{\varepsilon}{2}$$

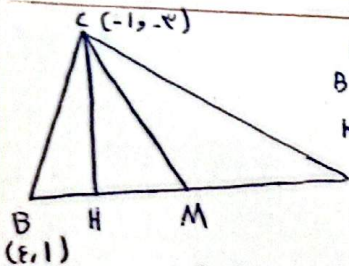
$$2y - x = 1, \quad \varepsilon y - 2x = 2 \xrightarrow{\text{موازی}} \frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{|1 - 2|}{\sqrt{1^2 + 2^2}} = \frac{1}{\sqrt{5}}$$



$$\frac{r}{\sqrt{5}} = 2r \Rightarrow r = \frac{2}{\sqrt{5}}$$

$$\text{مساحت دایره} = \pi r^2 = \pi \left(\frac{2}{\sqrt{5}} \right)^2 = \frac{4\pi}{5} \quad \checkmark$$

(۴)



$$CH \text{ خط} \Rightarrow BA \text{ عمود بر خط} \Rightarrow m_{BA} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - 3}{1 - (-1)} = -1$$

$$m_{CH} \cdot m_{BA} = -1 \Rightarrow m_{CH} \cdot (-1) = -1 \Rightarrow m_{CH} = 1$$

$$CH \text{ خط} \Rightarrow y = x + b \xrightarrow{\text{نقطه}} -3 = -1 + b \Rightarrow b = -2 \Rightarrow y = x - 2$$

$$M \text{ نقطه} = \left(\frac{1 + 4}{2}, \frac{1 + 1}{2} \right) = (2.5, 1)$$

$$\Rightarrow \frac{|ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}} = \frac{|2.5 - 2 + 2|}{\sqrt{1 + 1}} = \frac{2.5}{\sqrt{2}} = \frac{5\sqrt{2}}{4}$$

(۵)

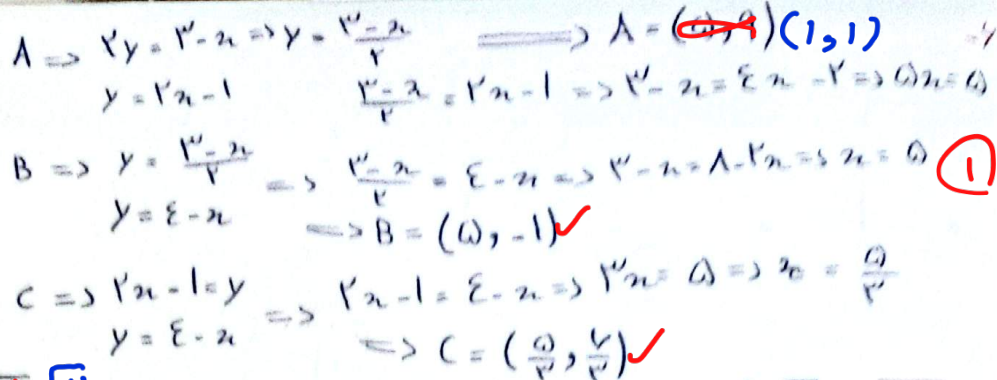
$$(2m - 2)x + (\omega - m)y - 7 = 0, \quad (m + 1)x - (2m - 4)y + 1 = 0 \Rightarrow \text{موازی}$$

$$m_1 \times m_2 = -1 \Rightarrow \frac{2m - 2}{\omega - m} \times \frac{m + 1}{-(2m - 4)} = -1 \Rightarrow \frac{2m - 2}{m - \omega} \times \frac{m + 1}{2m - 4} = -1$$

$$2m^2 - 2m + 2m - 2 = \varepsilon m - 2m^2 - 2 + 4m \Rightarrow \omega m^2 - 12m + 18 \Rightarrow \Delta < 0$$

به ازای هیچ مقداری از m دو خط موازی همود نیستند.

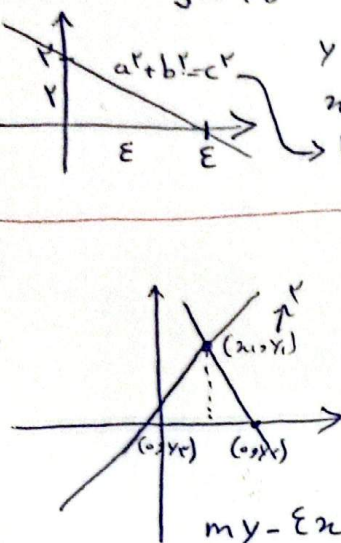
(۶)



$$M = \left(\frac{1}{r}, \frac{r}{r} \right) \Rightarrow \sqrt{\left(\frac{0}{r} \right)^2 + \left(\frac{r}{r} \right)^2} = \sqrt{\left(\frac{0}{r} \right)^2 (1 + r^2)} = \frac{0}{r} \sqrt{r^2} \quad \omega \sqrt{r} \quad r$$

$$Am = \sqrt{0}$$

$y = 0 \Rightarrow 0 = \frac{1}{\epsilon} x + \gamma \Rightarrow x = \epsilon \gamma$
 $x = 0 \Rightarrow y = \gamma$
 $\epsilon + \epsilon = c \Rightarrow c = \sqrt{\gamma_0} = \gamma$



$$\Rightarrow \varepsilon x + \gamma_m = (m - m^2)x + \gamma_m \Rightarrow$$

$$\varepsilon_n - (m - m^2)z=0 \Rightarrow \underbrace{(4m^2 - m + 1)}_{\text{مفروضی بنور}} z=0 \rightarrow z=0$$

$$x=0 \Rightarrow my = \{x = P_m \xrightarrow{\text{مقرری شود}} my = P_m \Rightarrow y = P\}$$

$$m y - \xi x = \psi_m \xrightarrow{y=0} -\xi x = \psi_m \Rightarrow m = -\frac{1}{\gamma} m$$

$$y = (1-m)x + Y \Rightarrow (1-m)x = -Y \Rightarrow x = \frac{-Y}{1-m}$$

$$\frac{r_x \left| -\frac{1}{r} m - \left(\frac{-r}{1-m} \right) \right|}{r} = \frac{Q}{r} \Rightarrow \left| \frac{m^r - m + E}{r - r_m} \right| = \frac{Q}{r} \rightarrow \frac{r_m^r - r_m}{r - r_m} = 1 \Rightarrow r_m^r - r_m + r = 0$$

$$y = P_2 - P^u, \quad (P_2 - P^u) = M$$

$$m^2 - 4m + 9 = 0 \rightarrow m = 3 \rightarrow -3$$

$$m^r + f_{m-1} = 0 \xrightarrow{\Delta > 0} \frac{C}{u} = -1 \quad \psi_n - \psi$$

$$n_A = \frac{n + n'}{V} = 1 \Rightarrow n + n' = \varepsilon \Rightarrow n = \varepsilon - n'$$

$$y_A = \frac{y+y'}{-1} = -y \Rightarrow y+y' = -\xi \Rightarrow y = -y' - \xi$$

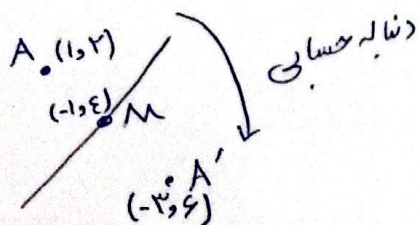
$$\gamma(y' - \varepsilon) = \gamma(\varepsilon - z') - \psi$$

$$\Rightarrow -y' - \xi = \Lambda - \psi_2' - \psi \Rightarrow$$

$$-y' = -y_2' + 9 \Rightarrow y' = y_2' - 9$$

$$y = x + a, \underline{y = -2x + b} \rightarrow (1, 2) \rightarrow 2 = -1 + b \Rightarrow b = 3$$

$$\begin{aligned} & \underline{y = -z + v} \\ z + \omega &= -z + v \Rightarrow (z = -v) \Rightarrow z = -1 \Rightarrow M = (-1, 8) \end{aligned}$$



$$\frac{A'(-3, 4)}{A'(a, b)} \Rightarrow 2b - a = 12 + 3 = 15 \quad \checkmark$$

$$m = -\frac{1}{r} \rightarrow y = -\frac{1}{r}x + C \rightarrow ry + x - rC = 0$$

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از فاصله نقطه :

$$\frac{|r(0) + 0 - rC|}{\sqrt{r^2 + 1}} = \frac{|rC|}{\sqrt{a}} = \sqrt{r^2} \rightarrow C = \pm a$$

$$\int \begin{cases} C = a \rightarrow y = -\frac{1}{r}x + a \rightarrow \begin{cases} A(0, a) \\ B(1, 0) \end{cases} \rightarrow AB = \sqrt{1 + a^2} \\ C = -a \rightarrow y = -\frac{1}{r}x - a \rightarrow \begin{cases} A(0, -a) \\ B(-1, 0) \end{cases} \rightarrow AB = \sqrt{1 + a^2} \end{cases}$$