

الف

$$y - 2 = -4(x - 4) \quad \frac{4}{-1} = -4 = m \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

پ) وکتی موازی هستند فقط عرض از مبدأ آنها متفاوت است پس جایگزینی و محض از مبدأ را به دست می آید

$$2(2) + 7(4) = c \rightarrow c = 41 \rightarrow 2y + 7x - 41 = 0 \Rightarrow y = -2x + 14$$

ج) عمود یعنی شیب متضاد ~~مکمل~~

$$3y = -x + 1 \rightarrow -\frac{1}{3}x + m = -1 \Rightarrow m = 3$$

$$y - 1 = 3(x - \frac{1}{3}) \Rightarrow y = 3x - 1$$

د) دوباره شیب می شد $\tan \alpha \leftarrow \tan \frac{\pi}{3} = \sqrt{3}$

$$y - 2 = \sqrt{3}(x - 4) \rightarrow y = \sqrt{3}x - 4\sqrt{3} + 2$$

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ب

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \quad \sqrt{(2 - (-1))^2 + (3 - 4)^2} \quad \sqrt{9 + 4} = 5$$

$$\frac{|ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}} \rightarrow \frac{|4x_1 + 6x_1 + c|}{\sqrt{4^2 + 6^2}} \rightarrow \frac{y + 10 - 3}{\sqrt{9 + 16}} \rightarrow 2$$

$$3x + 4y - 10 = 0$$

الف) خطیب برابر کنیم $ax + by = \frac{c + c'}{2}$

$$\begin{cases} 4x + 6y = 12 \\ 4x + 6y = 10 \end{cases} \rightarrow \begin{cases} 4x + 6y = 12 \\ 4x + 6y = 10 \end{cases} \rightarrow 4x + 6y - 10 = 0$$

$$\frac{|c - c'|}{\sqrt{a^2 + b^2}} \rightarrow \frac{4}{\sqrt{4^2 + 6^2}} \rightarrow \frac{2}{\sqrt{5}} \rightarrow \frac{2\sqrt{5}}{5}$$

$$\frac{|3x - 2y + 1|}{\sqrt{10}} = \frac{|2x + 3y + 1|}{\sqrt{10}} \rightarrow \begin{cases} 3x - 2y + 1 = 2x + 3y + 1 \\ 3x - 2y + 1 = -2x - 3y + 1 \end{cases}$$

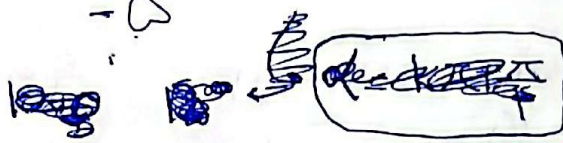
$$\rightarrow x - 5y = -2$$

$$\rightarrow 5x + y = 5$$

$$\tan \alpha = \left| \frac{m-m'}{1+mm'} \right| = \left| \frac{2-(-3)}{1+2(-3)} \right| = 1 \rightarrow \alpha = \frac{\pi}{4}$$

$$y = 2x + 5$$

$$y = -2x + 3$$



$$\sqrt{(x_A - x_B)^2 + (y_A - y_B)^2} = \sqrt{(2 - (-2))^2 + (-1 - 4)^2}$$

$$\sqrt{4 + 25} = 5$$

(الف - 6)

$$\frac{x_A + x_B}{2} = x'$$

$$\frac{y_A + y_B}{2} = y'$$

$$\frac{2-2}{2} = -1 = x$$

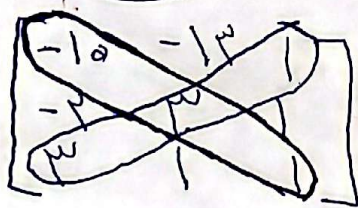
$$\frac{-1+4}{2} = \frac{3}{2} = y$$

$$\begin{pmatrix} -1 \\ 3 \end{pmatrix}$$

انت) مرکز ثقل $\Rightarrow \frac{x_A + x_B + x_C}{3} = \frac{2 + (-2) + (-1)}{3} = -1 = x$

$$\Rightarrow \frac{-1 + 0 - 2 + 3}{3} = -\frac{1}{3} = y$$

$$\begin{pmatrix} -1 \\ -\frac{1}{3} \end{pmatrix}$$



مركز ثقل

$$\Rightarrow \frac{1}{2} \left| -20 - 2 - 29 - (9 + 24 - 10) \right|$$

$$\rightarrow \frac{1}{2} \times 94 = 47$$

$$y = \frac{2x+1}{4x-3}$$

$$y = \frac{-2x-1}{4x-3}$$

$$y = \frac{2x+1}{4x-3}$$

$$y = \frac{-2x+1}{-4x-3}$$

انت) y ها كرنه ي شده

ب) لا ها كرنه ي شده

$$y = \frac{3x+1}{4x-2}$$

$$x = \frac{4y+1}{4y-2}$$

ج) x ها ي و y ها ي عوض ي شده

$$y = \frac{-3x+1}{4x+2}$$

$$-x = \frac{-2y+1}{-4y-2}$$

(>)

$$\begin{cases} x' = x - r \rightarrow x = x' + r \\ y' = y + r \rightarrow y = y' - r \end{cases} \rightarrow y' - r = \frac{r(x' + r) + 1}{x' + r - r}$$

(ب) 9

$$\rightarrow y' = \frac{rx' + r}{x' - 1}$$

$$\begin{cases} x' = x - r \rightarrow x = x' + r \\ y' = y - r \rightarrow y = y' + r \end{cases} \rightarrow y' + r = \frac{r(x' + r) + 1}{x' + r - r}$$

(ج)

$$\rightarrow y' = \frac{V}{x'}$$

$$\begin{cases} 2x + 5y = 2 \\ x - 5y = 1 \end{cases} \rightarrow x = 1 + 5y$$

(د) 10

منهج

$$x + \frac{5}{19} = 1$$

$$x = \frac{15}{19}$$

$$A \begin{vmatrix} \frac{15}{19} \\ -\frac{1}{19} \end{vmatrix}$$

$$x = - \frac{\begin{bmatrix} 2 & 5 \\ 1 & -5 \end{bmatrix}}{\begin{bmatrix} 2 & 5 \\ 1 & -5 \end{bmatrix}}$$

$$= \frac{-15}{-19}$$

$$\rightarrow \frac{15}{19} = x$$

$$y = \frac{\begin{bmatrix} 2 & 5 \\ 1 & -5 \end{bmatrix}}{\begin{bmatrix} 2 & 5 \\ 1 & -5 \end{bmatrix}}$$

$$= \frac{2 - 5}{-10 - 5}$$

$$\rightarrow -\frac{1}{19} = y$$