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الف) $m = \frac{-2-2}{5-4} = -4$ $y+2 = m(x-5) \rightarrow y = -4x+18$

ب) $y-2 = -2(x-4) \rightarrow y = -2x+10$

ج) $3y = 1-x \rightarrow y = \frac{1-x}{3} \rightarrow m = -\frac{1}{3} \rightarrow y-2 = -\frac{1}{3}(x-4) \rightarrow y = -\frac{1}{3}x + \frac{10}{3}$

د) $\frac{\pi}{4} = 45^\circ \rightarrow m = \tan 45^\circ = 1 \rightarrow y-2 = 1(x-4) \rightarrow y = x-2$

الف) $\sqrt{(7-3)^2 + (-1-2)^2} = \sqrt{16+9} = 5$

ب) $\frac{|12x+4y-3|}{\sqrt{14+14}} = \frac{12x+4y-3}{\sqrt{28}} = \frac{12x+4y-3}{2\sqrt{7}}$

الف) $\begin{cases} 2x+3y=2 \\ 4x+2y=1 \end{cases} \xrightarrow{2x} \begin{cases} 2x+3y=2 \\ 4x+2y=1 \end{cases} \rightarrow 2x+3y=1$

ب) $\frac{|12-11|}{\sqrt{14+14}} = \frac{1}{\sqrt{28}}$

$\frac{|2x+3y-2|}{\sqrt{4+9}} = \frac{|2x-2y-1|}{\sqrt{9+4}}$

$\rightarrow |2x+3y-2| = |2x-2y-1| \rightarrow -x+5y=2$

$\rightarrow |2x+3y-2| = |-2x+2y+1| \rightarrow 4x+y=2$

$\begin{cases} y = 2x+5 \rightarrow m=2 \\ y = -2x+2 \rightarrow m'=-2 \end{cases} \rightarrow \tan \alpha = \left| \frac{2-(-2)}{1+(-2)} \right| = 4 \rightarrow \alpha = \frac{\pi}{4} = 45^\circ$

$$\sqrt{(4+2)^2 + (-5-3)^2} = \sqrt{36 + 64} = 10$$

(الف)

$$x = \frac{3-5}{2} = \frac{-2}{2} = -1$$

$$y = \frac{-2+4}{2} = \frac{+2}{2} = +1 \rightarrow (-1, +1)$$

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ب

$$(-3, -3) \leftarrow y = \frac{(-13) + (3) + (1)}{3} = -3 \quad x = \frac{(-10) + (-2) + (3)^{-9}}{3} = -3$$

(الف)

$$\begin{bmatrix} -10 & -2 & 3 \\ -12 & 3 & 1 \\ 1 & 1 & 1 \end{bmatrix} \begin{matrix} (-30) + (-29) + (-2) - (9) - (-10) - (+24) \\ -3 - 12 - 2 + 12 + 3 - 24 \\ -69 & -11 & -19 \end{matrix} = -69 \times \frac{1}{-69} \rightarrow -48$$

ب

مامت ميج مانه سيني

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

(الف)

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

ب

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

ج

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

د

$$x = x+2 \rightarrow y-3 = \frac{2(x+2)+1}{(x+2)-3} \rightarrow y = \frac{2x+5}{x-1} + 3$$

(الف)

$$x = x+2 \rightarrow y+2 = \frac{2(x+2)+1}{(x+2)-3} = y = 2 + \frac{5}{x} \rightarrow x = \frac{5}{y-2} \rightarrow y = \frac{5}{x}$$

ب

$$\begin{cases} 2x+4y=2 \\ x-5y=1 \end{cases} \xrightarrow{x-2} \begin{cases} 2x+4y=2 \\ -2x+10y=-2 \end{cases}$$

$$14y = -1 \rightarrow y = -\frac{1}{14} \rightarrow x = \frac{14}{14}$$

(الف)

$$x = -\frac{\begin{vmatrix} 2 & 2 \\ 1 & -5 \end{vmatrix}}{\begin{vmatrix} 2 & 4 \\ 1 & -5 \end{vmatrix}} = \frac{2 - (-10)}{-10 - (4)} = \frac{12}{-14} = -\frac{6}{7} \quad y = \frac{\begin{vmatrix} 2 & 2 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 2 & 4 \\ 1 & -5 \end{vmatrix}} = \frac{2-2}{-10-4} = \frac{0}{-14} = 0$$

ب