

1- الف) $m = \frac{2+2}{2-2} = -2$ $y-2 = -2(x-2)$ **دقت!** $\rightarrow y = -2x + 4$ (د) (1, 7.5)

ب) $2y + 4x = -1 \rightarrow 2y = -4x - 1 \rightarrow y = -2x - \frac{1}{2} \rightarrow m = -2$

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

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

$y-2 = 3(x-2) \rightarrow y = 3x - 10$ ✓ $m = 3$

$\tan \frac{\pi}{4} = \sqrt{3} = m$

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

2- الف) $d = \sqrt{(3)^2 + (-1)^2} = \sqrt{10}$ ✓

ب) $\frac{|3(2) + (-1)(2) - 2|}{\sqrt{9+1}} = \frac{10}{\sqrt{10}} = \sqrt{10}$ ✓ $3x + (-1)y - 2 = 0 \rightarrow \frac{3}{\sqrt{10}}$

3- الف) $\begin{cases} 4x + 9y = 12 \\ 2x + 4y = 8 \end{cases} \rightarrow 4x + 9y = \frac{12+8}{2} \rightarrow 4x + 9y = 10$ ✓ (د) (2)

ب) $\begin{cases} 4x + 9y = 12 \\ 2x + 4y = 8 \end{cases} \rightarrow d = \frac{|12-8|}{\sqrt{16+9}} = \frac{4}{5} = \frac{4\sqrt{5}}{5}$ ✓

4- الف) $3x - 2y - 1 = 0, 2x + 3y - 2 = 0$ (د) (2)

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

$3x - 2y - 1 = -2x - 3y + 2$

$5x + y = 3$ ✓

$3x - 2y - 1 = 2x + 3y - 2$
 $x - 5y = -1$ ✓

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$$y = -2x + 3, y = 2x + 1$$

$$m = -2, m' = 2$$

$$\tan \alpha_2 = \left| \frac{-2-2}{1-4} \right| = 1 \quad \alpha = \frac{\pi}{4} \quad \text{د}$$

$$|AB| = \sqrt{(-2-2)^2 + (4+1)^2} = 10 \quad \checkmark$$

د الف (2)

$$M = \left(\frac{-2+2}{2}, \frac{2-2}{2} \right) \rightarrow M(-1, 1) \quad \checkmark$$

ب

$$\text{الف) } \mathcal{M}_G = \frac{-10-2+2}{2} = -2$$

$$\mathcal{Y}_G = \frac{-12+2+1}{2} = -2$$

$$G \begin{pmatrix} -2 \\ -2 \end{pmatrix}$$

د

د الف (2)

$$\begin{vmatrix} -10 & -12 & 1 \\ -2 & 2 & 1 \\ 2 & 1 & 1 \end{vmatrix} = \frac{1}{2} (-20 + 24 - 29 - 9 + 10 - 26) = -38 \quad \checkmark$$

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

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

د الف (2)

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

د الف (2)

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

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

$$2xy + 2x - 2y + 1$$

$$2xy - 2x = 2y + 1$$

$$2xy + 2y = -2x + 1$$

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

$$2y(2x+1) = -2x+1$$

$$2y = \frac{-2x+1}{2x+1} \rightarrow y = \frac{-2x+1}{2x+2} \quad \checkmark$$

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

$$\begin{cases} x' = x - 2 \rightarrow x = x' + 2 \\ y' = y + 3 \rightarrow y = y' - 3 \end{cases} \quad y' - 3 = \frac{2(x' + 2) + 1}{x' + 2 - 3}$$

د الف (2)

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

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

ب) ضربه مورد قبل

$$\begin{cases} 3x + 4y = 2 \\ x - 5y = 1 \end{cases}$$

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$$x - 5y = 1 \xrightarrow{\times 3} -3x + 15y = -3$$

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

$$x = \frac{14}{19}$$

$$\begin{cases} 3x + 4y = 2 \\ x - 5y = 1 \end{cases}$$

$$x = -\frac{14}{-19}, y = +\frac{1}{-19}$$

ب -

$$x = \frac{14}{19}$$

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

راه حل نهایی

$$x = -\frac{\begin{vmatrix} 4 & 2 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 3 & 4 \\ 1 & -5 \end{vmatrix}} = \frac{14}{19}$$

$$y = \frac{\begin{vmatrix} 3 & 2 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 3 & 4 \\ 1 & -5 \end{vmatrix}} = -\frac{1}{19}$$

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