

الف) $m_2 = \frac{2-3}{5-1} = -1 \Rightarrow y_2 = -x + 1$ ✓

ب) $2y_2 = 1 - 6x$
 $y_2 = \frac{1-6x}{2}$ ✓

ج) $2y_2 = 1 - 6x \rightarrow y_2 = \frac{1-6x}{2} \rightarrow m_2 = -\frac{1}{2} \xrightarrow{\text{عدد}} 3 \rightarrow y_2 = 3x - 1.5$ ✓

د) $\frac{\pi}{2} = 90^\circ \rightarrow m_2 = \tan 90^\circ = \sqrt{3} \rightarrow y_2 = \sqrt{3}x - 4\sqrt{3} + 2$ ✓

الف) $\sqrt{(1-2)^2 + (-1-2)^2} = \sqrt{1+9} = \sqrt{10}$ ✓

ب) $\frac{|2x_1 + 4y_2 - 3|}{\sqrt{3^2 + 4^2}} = \frac{|(2 \times 2) + (4 \times 2) - 3|}{5} = \frac{9}{5}$ ✓

$\begin{cases} 2x_1 + 4y_2 = 6 \\ x_1 + 2y_2 = 1 \end{cases} \xrightarrow{\times 2} \begin{cases} 2x_1 + 4y_2 = 6 \\ 2x_1 + 4y_2 = 2 \end{cases} \Rightarrow 2x_1 + 4y_2 = \frac{6+2}{2} = 4 \Rightarrow 2x_1 + 4y_2 = 4$ ✓

ب) $\frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{|12-1|}{\sqrt{14+36}} = \frac{11}{\sqrt{50}}$ ✓

$\frac{|2x_1 + 3y_2 - 3|}{\sqrt{4+9}} = \frac{|2x_1 - 3y_2 - 1|}{\sqrt{9+4}}$

$\Rightarrow 2x_1 + 3y_2 - 3 \begin{cases} \rightarrow 2x_1 - 3y_2 - 1 \rightarrow -x_1 + 5y_2 = 2 \checkmark \\ \rightarrow -2x_1 + 3y_2 + 1 \rightarrow 5x_1 + y_2 = 4 \checkmark \end{cases}$

$\begin{cases} y_2 = 2x_1 + 5 \rightarrow m_2 = 2 \\ y_2 = -2x_1 + 3 \rightarrow m_2 = -2 \end{cases} \rightarrow \tan \alpha = \left| \frac{2 - (-2)}{1 + (-4)} \right| = 1$

$\Rightarrow \tan \alpha = 1 \Rightarrow \alpha = \frac{\pi}{4} = 45^\circ$ ✓

$$\sqrt{(f+2)^2 + (-8-2)^2} = \sqrt{36+100} = 10 \quad \checkmark \text{ (الف)}$$

$$x_1 = \frac{2-0}{2} = 1 \quad \checkmark \text{ (ب)}$$

$$y_1 = \frac{-2+4}{2} = 1 \quad \checkmark \text{ (ب)}$$

$$x_1 = \frac{(-1) + (-2) + (2)}{3} = -\frac{1}{3}, \quad y_1 = \frac{(-12) + (3) + (1)}{3} = -\frac{8}{3} \quad \checkmark \text{ (الف)}$$

$$(-\frac{1}{3}, -\frac{8}{3}) \quad \checkmark$$

$$\frac{1}{2} \begin{bmatrix} -1 & -2 & 3 \\ -12 & 3 & 1 \\ 1 & 1 & 1 \end{bmatrix} = \frac{1}{2} \begin{pmatrix} -30 & -29 & -2 & -9 & 1 & -24 \end{pmatrix}$$

$$\Rightarrow -99 \times \frac{1}{2} = -\frac{99}{2} \quad \checkmark \text{ (ب)}$$

$$-y_1 = \frac{2x+1}{x-2} \quad \checkmark \text{ (الف)}$$

$$y_1 = \frac{-2x+1}{-x-2} \quad \checkmark \text{ (ب)}$$

$$x_1 = \frac{2y+1}{2y-2} \rightarrow y_1 = \frac{2x+1}{x-2} \quad \checkmark \text{ (ج)}$$

$$-x_1 = \frac{-2y+1}{-2y+1} \rightarrow y_1 = \frac{1-2x}{x+2} \quad \checkmark \text{ (د)}$$

$$x' = x+2 \Rightarrow x = x'+2$$

$$y' = y+5 \Rightarrow y = y'-5$$

$$y-2 = \frac{2(x+2)+1}{(x+2)-2} \rightarrow y = \frac{2x+5}{x-1} + 2 \quad \checkmark \text{ (الف)}$$

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

$$\begin{cases} 2x+y=2 \\ x-5y=1 \end{cases} \Rightarrow \begin{cases} 2x+y=2 \\ -2x+10y=-2 \end{cases} \Rightarrow 11y=-1 \Rightarrow y = -\frac{1}{11} \quad \checkmark \text{ (الف)}$$

$$x = \frac{\begin{vmatrix} 2 & 1 \\ -5 & -2 \end{vmatrix}}{\begin{vmatrix} 2 & 1 \\ 1 & -5 \end{vmatrix}} = \frac{2(-2)-1(-10)}{2(-5)-1} = \frac{-4+10}{-10-1} = \frac{6}{-11} = -\frac{6}{11} \quad \checkmark \text{ (ب)}$$

$$y = \frac{\begin{vmatrix} 2 & 2 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 2 & 1 \\ 1 & -5 \end{vmatrix}} = \frac{2(1)-2(1)}{-10-1} = \frac{0}{-11} = 0 \quad \checkmark$$