

$$\text{الف) } y = ax + b \rightarrow a = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-2)}{4 - 0} = 1 \rightarrow y = x + b \xrightarrow{1} 2 = 4 + b \rightarrow b = -2 \rightarrow y = x - 2$$

$$\text{ب) } 2y + 4x = -1 \rightarrow \text{شیب} = -\frac{1}{2} \rightarrow y = -\frac{1}{2}x + b \xrightarrow{1} 2 = -2 + b \rightarrow b = 4 \rightarrow y = -\frac{1}{2}x + 4$$

$$\text{ج) } x + 3y = 1 \rightarrow \text{شیب} = -\frac{1}{3} \rightarrow y = -\frac{1}{3}x + b \xrightarrow{1} 2 = -\frac{1}{3} + b \rightarrow b = \frac{7}{3} \rightarrow y = -\frac{1}{3}x + \frac{7}{3}$$

$$\text{د) } \tan \frac{\pi}{4} = a = 1 \rightarrow y = x + b \xrightarrow{1} 2 = 1 + b \rightarrow b = 1 \rightarrow y = x + 1$$

$$\text{الف) } d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{(2 - (-1))^2 + (3 - 1)^2} = \sqrt{10} = \omega$$

$$\text{ب) } d = \frac{|3x_0 + 4y_0 - 1|}{\sqrt{3^2 + 4^2}} = \frac{|3(2) + 4(3) - 1|}{\sqrt{25}} = \frac{16}{5} = \omega$$

$$\text{الف) } ax + by = \frac{c + c'}{2} \rightarrow 2x + 3y = \frac{4 + 2}{2} = 3 \rightarrow 2x + 3y = 3$$

$$\text{ب) } d = \frac{|c' - c|}{\sqrt{a^2 + b^2}} = \frac{|4 - 2|}{\sqrt{2^2 + 3^2}} = \frac{2}{\sqrt{13}}$$

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

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

$$y + 3x = 3 \rightarrow \text{شیب} = -\frac{1}{3} \quad \{ y - 2x = 0 \rightarrow \text{شیب} = \frac{1}{2}$$

$$\tan \alpha = \frac{m - m'}{1 + mm'} = \frac{\omega}{-\omega} = -1 \rightarrow \alpha = 135^\circ$$

$$\text{الف) } d = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2} = \sqrt{(1 - (-2))^2 + (-5 - 3)^2} = \sqrt{100} = 10$$

$$\text{ب) } A \begin{vmatrix} \frac{x_2 + x_1}{2} \\ \frac{y_2 + y_1}{2} \end{vmatrix} \rightarrow A \begin{vmatrix} -1 \\ 1 \end{vmatrix}$$

$$\text{الف) } m \begin{vmatrix} \frac{x_1 + x_2 + x_3}{3} \\ \frac{y_1 + y_2 + y_3}{3} \end{vmatrix} \rightarrow m \begin{vmatrix} -3 \\ -3 \end{vmatrix}$$

$$\text{ب) } \begin{vmatrix} -10 & -13 & 1 \\ -2 & 3 & 1 \\ 3 & 1 & 1 \end{vmatrix} = -10 \cdot 2 - 13 \cdot 9 - 1 \cdot 10 - 24 = -94 \rightarrow S = \frac{94}{2} = 47$$

$$\text{الف) } -y = \frac{2x+1}{2x-3} \rightarrow y = \frac{2x+1}{3-2x}$$

$$\text{ب) } y = \frac{-2x+1}{-2x-3}$$

$$\text{ج) } x = \frac{2y+1}{2y-3} \rightarrow y = \frac{2x+1}{2x-3}$$

$$\text{د) } -x = \frac{-2y+1}{-2y-3} \rightarrow y = \frac{1-2x}{2x+3}$$

$$\text{الف) } x' = x - 2 \rightarrow x = x' + 2 \quad \{ \quad y' = y + 3 \rightarrow y = y' - 3$$

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

$$\text{ب) } x' = x - 3 \rightarrow x = x' + 3 \quad \{ \quad y' = y - 2 \rightarrow y = y' + 2$$

$$y' + 2 = \frac{2x' + 5}{x'} \rightarrow y' = \frac{2}{x'}$$

$$\text{الف) } \begin{cases} 3x + 4y = 2 \\ 3x - 10y = 3 \end{cases} \quad 3x - 10y - 3x + 4y = 1 \rightarrow x = \frac{1}{19} \quad y = -\frac{1}{19}$$

$$\text{ب) } \begin{cases} 3x + 4y = 2 \\ x - 5y = 1 \end{cases} \quad x = -\frac{1}{19}, \quad y = \frac{1}{19}$$