

الف) $m = \frac{2+2}{-5-5} = -\frac{4}{10} = -\frac{2}{5} \rightarrow y-2 = -\frac{2}{5}(x-5) \Rightarrow y-2 = -\frac{2}{5}x + 2 \rightarrow \boxed{y = -\frac{2}{5}x + 4}$

ب) $2y + 4x + 1 = 0 \Rightarrow m = \frac{-2}{4} = -\frac{1}{2} \rightarrow y-2 = -\frac{1}{2}(x-5) \rightarrow \boxed{y = -\frac{1}{2}x + \frac{9}{2}}$

ج) $x + 3y - 1 = 0 \Rightarrow m = \frac{-1}{3} \xrightarrow{\text{مضرب ۳}} m' = 3 \Rightarrow y-2 = 3(x-5) \rightarrow y-2 = 3x - 15 \rightarrow \boxed{y = 3x - 13}$

د) $\frac{x}{4} + y = 1 \Rightarrow \tan \varphi = \frac{1}{4} \Rightarrow y-2 = \frac{1}{4}(x-5) \Rightarrow y-2 = \frac{1}{4}x - \frac{5}{4} \rightarrow \boxed{y = \frac{1}{4}x + \frac{3}{4}}$

الف) $\frac{\text{مسافت}}{\text{زمان}} = \sqrt{(5x)^2 + (4y)^2} \rightarrow AB = \sqrt{(5-3)^2 + (-1-2)^2} = \sqrt{4+9} = \sqrt{13} = \boxed{\sqrt{13}}$

ب) $d = \frac{|14 + 12 - 2|}{\sqrt{14+9}} = \frac{24}{5} = \boxed{4.8}$

الف) $\begin{cases} 2x + 3y = 4 \\ 5x + 4y = 1 \end{cases} \rightarrow \begin{cases} 2x + 3y = 4 \\ 2x + 3y = \frac{4+4}{2} = 4 \end{cases} \rightarrow \boxed{2x + 3y = 4}$

ب) $d = \frac{|C-C'|}{\sqrt{a^2+b^2}} = \frac{2}{\sqrt{5+9}} = \frac{2}{\sqrt{14}} = \frac{2\sqrt{14}}{14} = \boxed{\frac{\sqrt{14}}{7}}$

$\frac{|2x-3y-1|}{\sqrt{13}} = \frac{|2x+3y-3|}{\sqrt{13}} \rightarrow |2x-3y-1| = |2x+3y-3|$

$\rightarrow 2x-3y-1 = 2x+3y-3 \Rightarrow -6y = -2 \Rightarrow y = \frac{1}{3} \rightarrow \boxed{y = \frac{1}{3}}$

$\rightarrow 2x-3y-1 = -(2x+3y-3) \Rightarrow 4x = -2 \Rightarrow x = -\frac{1}{2} \rightarrow \boxed{x = -\frac{1}{2}}$

$\tan \alpha = \left| \frac{m-m'}{1+mm'} \right|$

$y-2x-5=0 \rightarrow m = 2$

$y+3x-3=0 \rightarrow m = -\frac{1}{3}$

$\tan \alpha = \left| \frac{2-\frac{1}{3}}{1+2(-\frac{1}{3})} \right| = \frac{5}{5} = 1 \rightarrow \boxed{\alpha = 45^\circ}$

$\beta = 180^\circ - 2\alpha = 90^\circ$



$$AB = \sqrt{(2+2)^2 + (2-3)^2} = \sqrt{16+1} = \sqrt{17} = 1.0$$

(وا)

$$M \begin{cases} \frac{-2+3}{2} = -1 \\ \frac{2-2}{2} = 1 \end{cases}$$

$$(-1, 1)$$

(ب)

وا)

$$x_3 = \frac{-1 - 2 + 3}{2} = \frac{-9}{2} = -3$$

$$y_3 = \frac{-1 + 3 + 1}{2} = \frac{-9}{2} = -3 \quad (-3, -3)$$

$$ب) \frac{1}{2} \begin{vmatrix} -1 & -1 & 1 \\ -2 & 2 & 1 \\ 3 & 1 & 1 \end{vmatrix} = \frac{1}{2} \times (4 - 10 + 14 + 30 + 2 + 4) = \frac{1}{2} \times 44 = 22$$

$$وا) (y \text{ مقلوبه}) \Rightarrow y = -\left(\frac{2x+1}{2x-3}\right) \Rightarrow y = \frac{-2x-1}{2x-3}$$

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

$$ج) (y \text{ و } x \text{ مقلوبه}) \Rightarrow x = \frac{2y+1}{2y-3} \Rightarrow 2xy - 3x = 2y+1 \Rightarrow 2xy - 2y = 3x+1 \Rightarrow y(2x-2) = 3x+1 \Rightarrow y = \frac{3x+1}{2x-2}$$

$$د) (x \text{ و } y \text{ مقلوبه}) \Rightarrow x = \frac{-2y+1}{-2y-3} \Rightarrow -2xy + 3x = -2y+1 \Rightarrow -2xy + 2y = 1-3x \Rightarrow y(-2x+2) = 1-3x \Rightarrow y = \frac{-1+3x}{-2x+2}$$

$$وا) x' = x-2 \Rightarrow x = x'+2$$

$$y' = y+2 \Rightarrow y = y'-2$$

$$y'-2 = \frac{2(x'+2)+1}{x'+2-2} \Rightarrow y' = \frac{2x'+5}{x'-1} + 2 \Rightarrow y' = \frac{2x'+5+2x'-2}{x'-1} = \frac{4x'+3}{x'-1}$$

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

$$ب) x' = x-3 \Rightarrow x = x'+3$$

$$y' = y-2 \Rightarrow y = y'+2$$

$$y'+2 = \frac{2(x'+3)+1}{(x'+3)-2} \Rightarrow y' = \frac{2x'+7}{x'+1} - 2 \Rightarrow y' = \frac{2x'+7-2x'-2}{x'+1} = \frac{5}{x'+1}$$

$$y' = \frac{5}{x'+1}$$

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

$$\begin{cases} 2x+3y=2 \\ -2x+12y=2 \end{cases}$$

$$14y = -1 \Rightarrow y = -\frac{1}{14} \Rightarrow x = \frac{15}{14}$$

(وا)

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

$$x = -\frac{\begin{vmatrix} b & c \\ b' & c' \end{vmatrix}}{\begin{vmatrix} a & b \\ a' & b' \end{vmatrix}} = -\frac{2+1}{-10-2} = \frac{3}{12} = \frac{1}{4}$$

$$y = \frac{\begin{vmatrix} a & c \\ a' & c' \end{vmatrix}}{\begin{vmatrix} a & b \\ a' & b' \end{vmatrix}} = \frac{2-2}{-10-2} = -\frac{1}{12}$$

1.