

الف) $m = \frac{2+2}{4-2} = -2 \quad y = -2x + b \xrightarrow{2= -2 \cdot 0 + b} b = 2 \quad y = -2x + 2$

ب) $m = -3 \quad y - 2 = -3(x - 4) \quad y = -3x + 14$

ج) $-\frac{1}{2}m = -1 \quad m = 2 \quad y - 2 = 2(x - 4) \quad y = 2x - 6$

د) $m = \tan \alpha = \tan \frac{\pi}{4} = \sqrt{2} \quad y - 2 = \sqrt{2}(x - 4) \quad y = \sqrt{2}x + 2 - 4\sqrt{2}$

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

ب) $\frac{|3 \times 2 + 7 \times 2 - 3|}{\sqrt{9+16}} = \frac{21}{5}$

الف) $\begin{cases} 2x + 3y = 4 \\ 2x + 3y = 2 \end{cases} \xrightarrow{\text{منها بکشد و وسط بزنه}} 2x + 3y = 0$

ب) $\frac{|4-2|}{\sqrt{4+9}} = \frac{2}{\sqrt{13}}$

$\frac{|3x - 2y - 1|}{\sqrt{9+4}} = \frac{|2x + 2y - 2|}{\sqrt{4+9}} \quad \left\{ \begin{array}{l} 3x - 2y - 1 = 2x + 2y - 2 \\ \boxed{x - 4y = -1} \\ 3x - 2y - 1 = -2x - 2y + 2 \\ \boxed{5x = 3} \end{array} \right.$

$m = 2 \quad m' = -2 \quad \tan \alpha = \left| \frac{2+2}{1-4} \right| = 1 \Rightarrow \alpha = 45^\circ$

الف) $\sqrt{(3+2)^2 + (-2-4)^2} = \sqrt{25+36} = 10$

ب) $\begin{cases} x = \frac{x_A + x_B}{2} = -1 \\ y = \frac{y_A + y_B}{2} = -1 \end{cases} \Rightarrow (-1, -1)$

الف) $\begin{cases} x = \frac{3-2-10}{3} = -3 \\ y = \frac{-12+2+1}{3} = -3 \end{cases} \Rightarrow (-3, -3)$

ب) $S = \frac{1}{3} \begin{vmatrix} -10 & -2 & 3 \\ -13 & 3 & 1 \\ 1 & 1 & 1 \end{vmatrix} = \frac{1}{3} |-10 \cdot 3 + 27 - 9 - 13 + 10| = \frac{21}{3} = 7$

الف) $-y = \frac{2x+1}{4x-2} \Rightarrow y = \frac{-2x-1}{4x-2}$

ب) $y = \frac{-2x+1}{-4x-2}$

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

-2

-3

-4

-5

-6

-7

-8

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

-9

$$\begin{aligned} 1) x' &= x-2 & y'-3 &= \frac{2x'+4+1}{x'+2-2} & y' &= \frac{2x'+5}{x'-1} + 3 & y' &= \frac{2x'+8}{x'-1} \\ y' &= y+3 \end{aligned}$$

$$\rightarrow) x' = x-2 \quad y'+2 = \frac{2x'+7+1}{x'+2-2} \quad y' = \frac{2x'+8}{x'} - 2 \quad y' = \frac{8}{x'}$$

-10

$$\text{الف) } \begin{cases} 3x+4y=2 \\ x-2y=1 \end{cases} \quad \begin{cases} 3x+4y=2 \\ 3x-12y=3 \end{cases} \quad \begin{aligned} 16y &= -1 \\ y &= -\frac{1}{16} \end{aligned} \quad x = \frac{14}{16}$$

$$\rightarrow) \quad x = -\frac{4+10}{-12-4} = \frac{14}{16} \quad y = \frac{3-2}{-12-4} = -\frac{1}{16}$$