

الف: $\frac{2-(-2)}{4-5} = \frac{4}{-1} = -4$ $y = -4x + b$ $2 = -4 \times 4 + b$ $b = 18$ $y = -4x + 18$

ب: $2y = -6x - 1$ $y = -3x - \frac{1}{2}$ $y = -3x + b$ $2 = -3 \times 4 + b$ $b = 14$ $y = -3x + 14$

ج: $3y = -x + 1$ $y = -\frac{x}{3} + \frac{1}{3}$ $y = 3x + b$ $2 = 3 \times 4 + b$ $b = -10$ $y = 3x - 10$

د: $y = \sqrt{3}x + b$ $2 = \sqrt{3} \times 4 + b$ $b = 2 - 4\sqrt{3}$ $y = \sqrt{3}x + 2 - 4\sqrt{3}$

الف: $\sqrt{(4-3)^2 + (-1-2)^2} = 5$

ب: $3x + 4y - 3 = 0$

$$\frac{|3 \times 2 + 4 \times 3 - 3|}{\sqrt{9+16}} = \frac{15}{5} = 3$$

الف: $2x + 3y = 4$
 $2x + 3y = 9$

$2x + 3y = \frac{4+9}{2}$ $2x + 3y = 6.5$

ب: $\frac{|9-4|}{\sqrt{4+9}} = \frac{5}{\sqrt{13}}$

$3x - 2y - 1 = 0$

$2x + 3y - 3 = 0$

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

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

$x - 5y = -2$

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

$5x + y = 4$

$y = -3x + 3$

$y = 2x + 5$

$$\tan \alpha = \left| \frac{2-(-3)}{1+(-6)} \right| = \left| \frac{5}{-5} \right| = 1$$

$\alpha = \frac{\pi}{4}$

$$\text{الف: } \sqrt{(4-(-2))^2 + (-5-3)^2} = 10$$

$$\text{ب: } \frac{-5+3}{4} = -1$$

$$\frac{4-2}{4} = 1$$

$$\begin{bmatrix} -1 \\ 1 \end{bmatrix}$$

$$\text{الف: } \frac{-10-2+3}{3} = -3 \quad \frac{-13+3+1}{3} = -3 \quad \begin{bmatrix} -3 \\ -3 \end{bmatrix}$$

$$\text{ب: } \frac{1}{3} \begin{vmatrix} -10 & -2 & 3 \\ -13 & 3 & 1 \\ 1 & 1 & 1 \end{vmatrix} \quad -10-2-39-9+10-29 = -99 \rightarrow 99$$

$$99 \times \frac{1}{3} = 33$$

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

$$\text{ج: } x = \frac{2y+1}{y-3}$$

$$\text{ب: } y = \frac{-2x+1}{-x-3}$$

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

$$\text{الف: } \begin{matrix} x' = x-2 & x = x'+2 \\ y' = y+3 & y = y'-3 \end{matrix}$$

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

$$\text{ب: } \begin{matrix} x' = x-3 & x = x'+3 \\ y' = y-2 & y = y'+2 \end{matrix}$$

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

$$\text{الف: } \begin{cases} 3x+4y=2 \\ -3x+12y=-3 \end{cases} \rightarrow 19y=-1 \quad y = -\frac{1}{19} \quad x = \frac{15}{19}$$

$$\text{ب: } x = -\frac{\begin{vmatrix} 4 & 2 \\ -3 & 1 \end{vmatrix}}{\begin{vmatrix} 3 & 4 \\ -3 & 12 \end{vmatrix}} = \frac{15}{19}$$

$$y = \frac{\begin{vmatrix} 3 & 2 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 3 & 4 \\ -3 & 12 \end{vmatrix}} = -\frac{1}{19}$$