

الف) $\frac{-2-2}{5-4} = -4 \xrightarrow{14} \boxed{y = -4x + 18}$

ب) $2y+6x-1 = y-3x-1 \xrightarrow{14} \boxed{y = -3x + 14}$

ج) $x+3y-1 = y-\frac{1}{3}x+\frac{1}{3} \xrightarrow{14} \boxed{y = 3x - 10}$

د) $\tan \frac{\pi}{3} = \sqrt{3} \xrightarrow{14} \boxed{y = \sqrt{3}x - 4\sqrt{3} + 2}$

الف) $\sqrt{(-1-2)^2 + (7-3)^2} = 5$

ب) $\frac{|6+12-3|}{\sqrt{9+16}} = \frac{15}{5} = 3$

$\frac{8+12}{2} = 10$

الف) $2x+3y-6 = 2 \rightarrow 4x+6y-12, 4x+6y-8 \rightarrow \boxed{4x+6y-10}$

ب) $\frac{|12-8|}{\sqrt{16+36}} = \frac{4}{\sqrt{52}} = \frac{\sqrt{52}}{13} = \frac{2\sqrt{13}}{13}$

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

$\frac{|3x-2y-1|}{\sqrt{9+4}} = \frac{|2x+3y-3|}{\sqrt{4+9}} \rightarrow \begin{cases} 3x-2y-1 = 2x+3y-3 \\ \boxed{5y-x-2} \end{cases}$

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

$x+3y-3, x-2y-5 \rightarrow \begin{cases} x-3y+3 \\ x-2y-5 \end{cases} \begin{matrix} m=3 \\ m=2 \end{matrix}$

$\tan \alpha = \left| \frac{2-3}{1-6} \right| = 1 \rightarrow \alpha = \frac{\pi}{4} = 45^\circ, \beta = 180 - 45 = 135^\circ$

الف) $\sqrt{(-5-3)^2 + (4-2)^2} = \sqrt{64+36} = 10$

ب) $\begin{vmatrix} \frac{-5+3}{2} \\ \frac{4-2}{2} \end{vmatrix} \rightarrow \begin{vmatrix} -1 \\ 1 \end{vmatrix}$

الف) $x_1 = \frac{-10-2+3}{3} = -3, x_2 = \frac{-13+3+1}{3} = -3 \quad \begin{vmatrix} -3 \\ -3 \end{vmatrix}$

ب) $\frac{1}{2} \begin{vmatrix} -10 & -13 & 1 \\ -2 & 3 & 1 \\ 3 & 1 & 1 \end{vmatrix} = \frac{-30-39-2-9+10+26}{2} = 22$

الف) $-y, \frac{2x+1}{4x-3}$

ب) $x_1 = \frac{-2x+1}{-4x-3}$

ج) $x_1 = \frac{2y+1}{4y-3} \rightarrow x_2 = \frac{1+3x}{4x-2}$

د) $x_1 = \frac{-2y+1}{4y-3} \rightarrow x_2 = \frac{1-3x}{4x+2}$

الف) $\begin{vmatrix} x' & x-2 \\ y' & y+3 \end{vmatrix} = \begin{vmatrix} x' & x+2 \\ y' & y-3 \end{vmatrix} \rightarrow \frac{2(x'+2)+1}{x'+2-3} = y'-3 \rightarrow y' = \frac{5x'+2}{x'-1}$

ب) $\begin{vmatrix} x' & x-3 \\ y' & y-2 \end{vmatrix} = \begin{vmatrix} x' & x+3 \\ y' & y+2 \end{vmatrix} \rightarrow y' = \frac{2(x'+3)+1}{x'+3-3} = \frac{y'}{x'}$

الف) $\begin{cases} 3x+4y=2 \\ 3x-5y=1 \end{cases} \rightarrow 19y=-1 \rightarrow y = -\frac{1}{19}, x = \frac{14}{19}$

ب) $x_1 = \frac{\begin{vmatrix} 4 & 2 \\ 5 & 1 \end{vmatrix} \cdot 14}{\begin{vmatrix} 3 & 4 \\ 1 & -5 \end{vmatrix} = -19} = y_2 = \frac{\begin{vmatrix} 3 & 2 \\ 1 & 1 \end{vmatrix} \cdot 1}{\begin{vmatrix} 3 & 4 \\ 1 & -5 \end{vmatrix} = -19} \rightarrow x_1 = \frac{14}{19}, y_2 = -\frac{1}{19}$