

خط لثا از ۲

$$ax+by$$

الف) $\begin{cases} y_2 - 2x + b \\ y_2 - 6x + 18 \end{cases} \rightarrow m_2 = \frac{2}{-1} = -2 \rightarrow y_2 - 2x + b \xrightarrow{x=2} 2 - 4 + b \rightarrow b = 18$

ب) $\begin{cases} y_2 - 3x + b \\ y_2 - 3x + 14 \end{cases} \rightarrow m_2 = -3 \xrightarrow{\text{موازی}} m_2' = -3 \rightarrow y_2 - 3x + b \xrightarrow{x=2} 2 - 6 + b \rightarrow b = 14$

ج) $\begin{cases} y_2 = 3x + b \\ y_2 = 3x - 1 \end{cases} \rightarrow m_2 = 3 \xrightarrow{\text{عمود}} m_2' = -\frac{1}{3} \rightarrow y_2 = 3x + b \xrightarrow{x=2} 2 \cdot 3 + b \rightarrow b = -1$

د) $m_2 = \tan \alpha \rightarrow m_2 = \tan \frac{\pi}{3} = \sqrt{3} \rightarrow y_2 = \sqrt{3}x + b \xrightarrow{x=2} 2\sqrt{3} + b \rightarrow y_2 = \sqrt{3}x + 2 - 2\sqrt{3}$

الف) $|AB| = \sqrt{(2+1)^2 + (\frac{3}{2}-\frac{1}{2})^2} = \frac{\sqrt{10}}{2}$

ب) $|A| = \frac{|2+1-\frac{3}{2}|}{\sqrt{1+1}} = \frac{11}{2\sqrt{2}}$

$\begin{cases} 2x+3y=6 \\ 2x+3y=4 \end{cases} \rightarrow m_2 = m_2' \rightarrow \text{طریقه مستقیم}$

الف) $2x+3y=5$

ب) $\frac{|-2(-6)|}{\sqrt{4+9}} = \frac{12}{\sqrt{13}}$

$\begin{cases} 3x-2y=1 \\ 2x+3y=3 \end{cases} \rightarrow \begin{cases} 3x-2y-1=0 \\ 2x+3y-3=0 \end{cases}$

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

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

$\begin{cases} y+3x=3 \\ y-2x=5 \end{cases} \rightarrow \begin{cases} m_2 = -3 \\ m_2' = 2 \end{cases}$

$\tan \alpha = \left| \frac{m-m'}{1+mm'} \right| \rightarrow \tan \alpha = \left| \frac{-3-2}{1-6} \right| = 1 \rightarrow \alpha = \frac{\pi}{4}$

$$A \begin{vmatrix} 3 \\ -2 \end{vmatrix} \quad B \begin{vmatrix} -5 \\ 3 \end{vmatrix}$$

$$\text{الف) } |AB| = \sqrt{\frac{A^2}{36} + \frac{(-5)^2}{36}} = 10$$

$$\text{ب) } M\left(\frac{x_A + x_B}{2}, \frac{y_A + y_B}{2}\right)$$

$$\rightarrow M\left(\frac{-2}{2}, \frac{3}{2}\right) \rightarrow \underline{M(-1, 1.5)}$$

$$| \begin{vmatrix} 3 \\ 1 \end{vmatrix} , | \begin{vmatrix} -2 \\ 3 \end{vmatrix} , | \begin{vmatrix} -5 \\ -13 \end{vmatrix} \rightarrow \text{نقطه}$$

$$\text{الف) } \text{مركز ثقل} \left(\frac{x_A + x_B + x_C}{3}, \frac{y_A + y_B + y_C}{3} \right) \rightarrow \text{مركز ثقل} : G\left(\frac{-9}{3}, \frac{-9}{3}\right) \Rightarrow G(-3, -3)$$

$$\text{ب) } \Delta = \frac{1}{2} \begin{vmatrix} x_A & y_A & 1 \\ x_B & y_B & 1 \\ x_C & y_C & 1 \end{vmatrix} = \frac{1}{2} \begin{vmatrix} 3 & 1 & 1 \\ -2 & 3 & 1 \\ -1 & -13 & 1 \end{vmatrix} = \frac{1}{2} (9 + 24 - 10 + 13 + 2 + 139) = 94$$

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

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

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

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

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

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

$$\text{الف) } | \begin{vmatrix} 2 \\ 0 \end{vmatrix} \rightarrow | \begin{vmatrix} 2 \\ -3 \end{vmatrix} \rightarrow x' = x-2 \rightarrow x = x'+2$$

$$\text{ب) } | \begin{vmatrix} 3 \\ 2 \end{vmatrix} \rightarrow | \begin{vmatrix} 3 \\ -2 \end{vmatrix} \rightarrow x' = x-3 \rightarrow x = x'+3$$

$$y' = y+3 \rightarrow y = y'-3$$

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

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

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

$$\text{الف) } \begin{cases} 3x+5y=2 \\ -3x+15y=-3 \end{cases} \rightarrow 19y=-1$$

$$y = -\frac{1}{19} \rightarrow 3x - \frac{5}{19} = 2 \rightarrow 3x = \frac{39}{19} \rightarrow x = \frac{13}{19}$$

$$\text{ب) } \begin{cases} 3x+5y=2 \\ x-5y=1 \end{cases} \rightarrow x = -\frac{10}{19} + \frac{13}{19} = \frac{3}{19}$$

$$y = \frac{1}{19} \rightarrow \frac{3}{19} - \frac{5}{19} = -\frac{2}{19}$$