

الف) $m = \frac{2+2}{4-5} = \frac{4}{-1} = -4$

$y - 2 = -4(x - 4) \Rightarrow y = -4x + 18$

شیب یکسانی موازی باشد (ب)
 $2y + 4x - 1 = 2y - 4x - 1$
 $y = 2x - \frac{1}{2} \Rightarrow m = 2$
 $y - 2 = 2(x - 4)$
 $y = 2x - 6$

① شیب قریب معلوم در عمود باشد (ج)
 $x + 2y = 1 \Rightarrow y = \frac{1}{2} - \frac{x}{2}$
 $m = -\frac{1}{2} \Rightarrow m' = 2$
 $y - 2 = 2(x - 4) \Rightarrow y = 2x - 6$

د) $\frac{\pi}{3} = 60^\circ \Rightarrow \text{شیب} = \tan 60^\circ = \sqrt{3} \Rightarrow y - 2 = \sqrt{3}(x - 4) \Rightarrow y = \sqrt{3}x - 4\sqrt{3} + 2$

فاصله: $\sqrt{(\frac{1}{9} + 1) + (\frac{3}{16} + 1)} = 5$ ب) $3x + 4y - 20 = 0 \Rightarrow d = \frac{|12 + 12 - 20|}{\sqrt{9 + 16}} = \frac{4}{5} = 0.8$ ②

$4x + 9y = 1 \Rightarrow 9y = 1 - 4x \Rightarrow y = \frac{1}{9} - \frac{4}{9}x$
 الف) $2x + 3y = 9 \Rightarrow 3y = 9 - 2x \Rightarrow y = 3 - \frac{2}{3}x$ } خطوط دو خط موازی
 $\frac{4}{9} + \frac{3}{9} = \frac{6}{9} \Rightarrow y = \frac{2}{3}x + \frac{6}{9}$ ③

ب) $d = \frac{|C - C'|}{\sqrt{a^2 + b^2}} = \frac{|2 - \frac{4}{9}|}{\sqrt{(\frac{4}{9})^2 + 1}} = \frac{\frac{14}{9}}{\sqrt{\frac{16}{81} + 1}} = \frac{\frac{14}{9}}{\sqrt{\frac{97}{81}}} = \frac{14}{\sqrt{97}}$

$3x - 2y = 1 \Rightarrow 2y = 3x - 1 \Rightarrow y = \frac{3}{2}x - \frac{1}{2} \Rightarrow m = \frac{3}{2}$
 $2x + 3y = 3 \Rightarrow 3y = 3 - 2x \Rightarrow y = 1 - \frac{2}{3}x \Rightarrow m = -\frac{2}{3}$ } منقطع دو خط موازی ④

$\frac{|y - 1 + \frac{4}{9}x|}{\sqrt{\frac{16}{81} + 1}} = \frac{|y - \frac{3}{2}x + \frac{1}{2}|}{\sqrt{\frac{9}{4} + 1}} \Rightarrow \frac{y + \frac{4}{9}x - 1}{\sqrt{\frac{97}{81}}} = \frac{y - \frac{3}{2}x + \frac{1}{2}}{\sqrt{\frac{13}{4}}} \Rightarrow \frac{\sqrt{13}}{4}y + \frac{\sqrt{13}}{9}x - \frac{\sqrt{13}}{4} = \frac{\sqrt{97}}{9}y - \frac{\sqrt{97}}{2}x + \frac{\sqrt{97}}{9}$

$\frac{\sqrt{13}}{4}y + \frac{\sqrt{13}}{9}x - \frac{\sqrt{13}}{4} = \frac{\sqrt{97}}{9}y - \frac{\sqrt{97}}{2}x + \frac{\sqrt{97}}{9}$

$y + 3x = 3 \Rightarrow y = 3 - 3x \Rightarrow m = -3$

$y - 2x = 6 \Rightarrow y = 6 + 2x \Rightarrow m = 2$

$\tan \alpha = \left| \frac{2 + 3}{1 + 9} \right| = \frac{5}{10} = \frac{1}{2} \Rightarrow \alpha = 26.5^\circ$ ⑤

$B = 110 - 45 = 65$

$A \left| \frac{3}{-2} \right|, B \left| \frac{-6}{4} \right| \Rightarrow AB = \sqrt{(3+6)^2 + (-2-3)^2} = 10$ ⑥

ب) $m_1 = \frac{3-6}{4} = -\frac{3}{4}$ $m_2 = \frac{-2+6}{4} = 1 \Rightarrow m \left| \frac{-1}{1} \right|$

الف) $x_G = \frac{-1 - (-2 + 3)}{4} = -\frac{1}{4}$ $y_G = \frac{-1 + 2 + 1}{4} = \frac{2}{4} = \frac{1}{2} \Rightarrow G \left| \frac{-1}{4}, \frac{1}{2} \right|$ ⑦

$S = \frac{1}{4} \begin{vmatrix} -1 & -3 & 1 \\ -2 & 4 & 1 \\ 4 & 1 & 1 \end{vmatrix} \Rightarrow \frac{1}{4} (-1 - 3 - 2 - 4 + 4 + 1) = \frac{1}{4} (-10) = -\frac{5}{2}$ ✓

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

①

الف) $-y = \frac{2n+1}{2n-3}$

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

ب) $y = \frac{-2n+1}{-2n+3}$

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

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

②

الف) $\begin{cases} n' = n-2 \\ y' = y+3 \end{cases} \rightarrow \begin{cases} n = n'+2 \\ y = y'-3 \end{cases} \Rightarrow y'-3 = \frac{2(n'+2)+1}{(n'+2)-3} \Rightarrow y' = \frac{2n'+5}{n'-1}$

ب) $\begin{cases} n' = n-3 \\ y' = y-2 \end{cases} \rightarrow \begin{cases} n = n'+3 \\ y = y'+2 \end{cases} \Rightarrow y'+2 = \frac{2(n'+3)+1}{(n'+3)-3} \Rightarrow y' = \frac{2n'+7}{n'}$

$$\begin{cases} 2n+4y=2 \\ (n-6y=1) \times -3 \end{cases} \Rightarrow \begin{matrix} 2n+4y=2 \\ -3n+18y=-3 \end{matrix} \Rightarrow \begin{matrix} 2n+4y=2 \\ 19y=-1 \end{matrix} \Rightarrow y = -\frac{1}{19}$$

$$n = \frac{18}{19}$$

$$2n + \frac{2}{19} = \frac{38}{19} \Rightarrow 2n = \frac{36}{19}$$

ب) $\begin{cases} 2n+4y=2 \\ n-6y=1 \end{cases}$

$$y = \frac{\begin{vmatrix} 2 & 1 \\ 1 & -6 \end{vmatrix}}{\begin{vmatrix} 2 & 4 \\ 1 & -6 \end{vmatrix}} = \frac{1}{-19}$$

$$n = \frac{\begin{vmatrix} 2 & 2 \\ -6 & 1 \end{vmatrix}}{\begin{vmatrix} 2 & 4 \\ 1 & -6 \end{vmatrix}} = \frac{18}{-19} = -\frac{18}{19}$$

③