

الف) $m = \frac{2+2}{4-6} = \frac{4}{-2} = -2$

$y - 2 = -2(x - 4) \Rightarrow y = -2x + 8 + 2$

$y = -2x + 10$

ب) $2y + 6x - 1 = 2y - 6x - 1$
 $y = 3x - \frac{1}{2} \Rightarrow m = 3$
 $y - 2 = 3(x - 4) \Rightarrow y = 3x - 10$
 $y = 3x - 10$

ج) شیب قائمه عمود است (ع) $n + 3y = 1 \Rightarrow y = \frac{1}{3} - \frac{n}{3}$
 $m = -\frac{1}{3} \Rightarrow m = \frac{1}{3}$
 $y - 2 = \frac{1}{3}(x - 4) \Rightarrow y = \frac{1}{3}x - \frac{4}{3} + 2$

د) $\frac{n}{3} = 90^\circ \Rightarrow \text{شیب} = \tan 90^\circ = \sqrt{3} \Rightarrow y - 2 = \sqrt{3}(x - 4) \Rightarrow y = \sqrt{3}x - 4\sqrt{3} + 2$

ه) $\sqrt{(1+1)^2 + (3-5)^2} = 5$ ب) $3x + 4y - 2 = 0 \Rightarrow d = \frac{|14+12-2|}{\sqrt{9+16}} = \frac{24}{5}$

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

ب) $d = \frac{|C - C'|}{\sqrt{a^2 + b^2}} = \frac{|2 - \frac{4}{3}|}{\sqrt{(\frac{2}{3})^2 + 1}} = \frac{\frac{2}{3}}{\sqrt{\frac{13}{9}}} = \frac{\frac{2}{3}}{\frac{\sqrt{13}}{3}} = \frac{2}{\sqrt{13}}$

$3x - 2y = 1 \Rightarrow 2y = 3x - 1 \Rightarrow y = \frac{3}{2}x - \frac{1}{2} \Rightarrow m = \frac{3}{2}$
 $2x + 3y = 3 \Rightarrow 3y = 3 - 2x \Rightarrow y = 1 - \frac{2}{3}x \Rightarrow m = -\frac{2}{3}$
 متقاطع $\Rightarrow$ دو خط هم‌بافت $\Rightarrow$ $\frac{3}{2} \neq -\frac{2}{3}$

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

$\frac{\sqrt{13}}{3}y + \frac{\omega\sqrt{13}}{3}x - \frac{\omega\sqrt{13}}{3} = 0$
 $|2x + 3y - 1| = |3x - 2y - 1|$
 $\frac{|2x + 3y - 1|}{\sqrt{4+9}} = \frac{|3x - 2y - 1|}{\sqrt{9+4}}$
 $x + 2 = 5y$
 $5x + y = 2$

$y + 3x = 3 \Rightarrow y = 3 - 3x \Rightarrow m = -3$
 $y - 2x = 6 \Rightarrow y = 6 + 2x \Rightarrow m = 2$
 $B = 110^\circ - 180^\circ = 130^\circ$
 $\tan \alpha = \left| \frac{2 + 3}{1 + 9} \right| = \frac{5}{10} = \frac{1}{2} \Rightarrow \alpha = 26.5^\circ$

$A \left| \frac{3}{-2} \right|, B \left| \frac{-6}{1} \right| \Rightarrow AB = \sqrt{(3+6)^2 + (-2-6)^2} = 10$

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

الف) $x_G = \frac{1 \cdot (-2+3)}{3} = -\frac{1}{3}$ $y_G = \frac{-1 \cdot 3 + 2 + 1}{3} = \frac{0}{3} = 0 \Rightarrow G \left| \frac{-1}{3} \right|$

$S = \frac{1}{3} \begin{vmatrix} -1 & -3 & 1 \\ -2 & 3 & 1 \\ 3 & 1 & 1 \end{vmatrix} \Rightarrow \frac{1}{3} (-3 \cdot 3 \cdot 1 - 3 \cdot 9 - 2 \cdot 9 + 2 \cdot 1 + 1 \cdot 0) = \frac{1}{3} (-3 - 27 - 18 + 2) = \frac{-43}{3}$
 $| (9 + 24 - 10 - (-3 - 19 - 2)) | = 48$

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

①

الف) $-y = \frac{2n+1}{2n-3}$

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

②

ب) $y = \frac{-2n+1}{-2n+3}$

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

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

③

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

④

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

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

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

⑤

⑥