

المحور السيني

المحور الـ y

$$\text{الف) } m = \frac{\Delta y}{\Delta x} = \frac{1 - (-1)}{1 - 0} = -2$$

$$y = mx + b \rightarrow y = -2x + b$$

$$\hookrightarrow \text{نقطة } (0, 1) \rightarrow y = -2x + 1$$

$$\text{ب) } 2y + 4x = -1 \rightarrow m = -\frac{1}{2}, m' = 2$$

$$y = m'x + b \rightarrow y = 2x + b$$

$$\hookrightarrow \text{نقطة } (0, -\frac{1}{2}) \rightarrow y = 2x - \frac{1}{2}$$

$$\text{ج) } m = \frac{\Delta y}{\Delta x} = -\frac{1}{2} \rightarrow m' = 2 \quad (1)$$

$$y = m'x + b \rightarrow y = 2x + b$$

$$\hookrightarrow \text{نقطة } (0, -1) \rightarrow y = 2x - 1$$

$$\text{د) } \frac{1}{\sqrt{2}} \rightarrow 45^\circ, m = \tan \theta = \sqrt{2}$$

$$y = mx + b \rightarrow y = \sqrt{2}x + b$$

$$\hookrightarrow \text{نقطة } (0, 1 - \sqrt{2}) \rightarrow y = \sqrt{2}x + 1 - \sqrt{2}$$

$$\text{الف) } A = \sqrt{(-1-2)^2 + (1-3)^2} = \sqrt{9+4} = \sqrt{13} = d$$

$$\begin{aligned} \text{ب) } \frac{|ax+by+c|}{\sqrt{a^2+b^2}} &= \frac{|3x+2y-1|}{\sqrt{3^2+2^2}} \quad (2) \\ &= \frac{|3 \times 2 + 2 \times 3 - 1|}{\sqrt{13}} = \frac{10}{\sqrt{13}} = d \end{aligned}$$

$$\text{الف) } 2x + 3y = 4$$

$$4x + 6y = 8 \rightarrow 2x + 3y = 4$$

$$C' = \frac{|C+C'|}{2} \rightarrow \frac{4+4}{2} = \frac{8}{2} = 4$$

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

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

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

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

$$\begin{aligned} &\rightarrow x - 5y + 2 = 0 \quad \text{أو} \quad x + y - 2 = 0 \\ &\text{المحور السيني} \quad \text{المحور الـ y} \end{aligned}$$

$$y = 2 - 2x, y = 2x - 2$$

$$m = \tan \theta = \left| \frac{m - m'}{1 + mm'} \right| \rightarrow \left| \frac{-\frac{2}{3} - \frac{3}{2}}{1 + (-4)} \right| \rightarrow \left| \frac{-\frac{17}{6}}{-3} \right| = 1 \rightarrow \tan \theta = 1 \rightarrow \theta = 45^\circ$$

DAT

الف) $A = \sqrt{(-r-\varepsilon)^2 + (r-(-d))^2} = 10$

ب) $x_{mid} = \frac{r-d}{2} = \frac{-r}{2} = -1$ (6)

$y_{mid} = \frac{\varepsilon-r}{2} = \frac{r}{2} = 1$

↪ منتصف خط -1

الف) $x = \frac{x_1 + x_2 + x_3}{3} = \frac{-1 + 3 - 5}{3} = -1$

ب) $\begin{matrix} 3 & -5 & -10 \\ 1 & 3 & 13 \end{matrix}$

$y = \frac{y_1 + y_2 + y_3}{3} = \frac{3 + 1 - 13}{3} = -3$

$\begin{matrix} 3 & 1 & 1 \\ 1 & 1 & 1 \end{matrix}$

مركز ثقل $\begin{matrix} 3 \\ -1 \\ -3 \end{matrix}$

$S = 9 + (-24) + -10 = -25 = -25 + 10 = -15$ (7)

الف) $-y = y' \rightarrow -y = \frac{rx+1}{\varepsilon n-r}$

↪ $y = \frac{-rx-1}{\varepsilon n-r}$

ب) $-n = n' \rightarrow y = \frac{-rx+1}{-\varepsilon n-r}$ (8)

↪ $y = \frac{rx-1}{\varepsilon n+r}$

ج) $y = n \rightarrow x = \frac{ry+1}{\varepsilon y-r}$

↪ $\varepsilon n y - r y = rx + 1 \rightarrow y = \frac{rx+1}{\varepsilon n-r}$

د) $y = -n \rightarrow x = \frac{-ry+1}{-\varepsilon y-r}$

↪ $\varepsilon n y + r y = 1 - rx \rightarrow y = \frac{1-rx}{\varepsilon n+r}$

$x = x_r + a \quad y = y_r + b$

(↪ $x = x_r + a \quad y = y_r + b$) (9)

$x = x_c + r \quad y = y_r + r$

$x = x_c + r \quad y = y_r - r$

$y_r + r = \frac{r(x_c + r) + 1}{x_c + r - r} = y_r + r = \frac{rx_c + 1}{x_c}$

$y_r = \frac{r}{x_c} \rightarrow y = \frac{r}{x}$

$y_r - r = \frac{r(x_c + r) + 1}{(x_c + r) - r} \rightarrow y_r = \frac{rx_c + r}{x_c - 1}$

↪ $y = \frac{rx + r}{x - 1}$

الف) $rx + \varepsilon y = r \quad x - dy = 1$

↪ $rx + \varepsilon y = r \quad \rightarrow -rx + 1dy = -r$

$19y = -1 \rightarrow y = \frac{-1}{19}$

$x + \frac{d}{19} = 1 \rightarrow x = \frac{18}{19}$

↪

$x = \frac{-(-\varepsilon - 10)}{-10 - \varepsilon} = \frac{1\varepsilon}{19}$

$y = \frac{r-r}{\varepsilon - (-10)} = \frac{-1}{19}$