

$$m_1 = m_2 = \frac{-y}{x} = -\frac{2}{1}$$

$$\boxed{y = -2x + 12}$$

(ب)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-2)}{4 - 0} = -2$$

$$\boxed{y = -2x + 12}$$

(الف)

$$\tan \frac{\pi}{4} = \tan 45^\circ = \sqrt{3} = m$$

$$\boxed{y = \sqrt{3}x + 2 - 2\sqrt{3}}$$

$$m_1 m_2 = -1 \rightarrow m_2 = 3$$

$$m_2 = -\frac{1}{m_1}$$

$$\boxed{y = 3x - 10}$$

(ج)

$$\text{المسافة} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \rightarrow \text{المسافة} = \sqrt{(4 - 2)^2 + (1 - 2)^2} = \boxed{\sqrt{2}}$$

(الف)

$$\cos \theta = \frac{|ax + by - c|}{\sqrt{a^2 + b^2}} = \frac{10}{2} = \boxed{5}$$

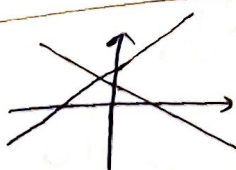
(ب)

$$\begin{cases} 2x + 3y = 12 \\ 2x + 3y = 10 \end{cases} \rightarrow \begin{cases} 2x + 3y = 10 \end{cases} \rightarrow \boxed{2x + 3y = 10} \text{ (الف)}$$

$$\text{المسافة} = \frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{2}{2\sqrt{13}} = \boxed{\frac{\sqrt{13}}{13}} \text{ (ب)}$$

$$\frac{|ax + by - c|}{\sqrt{a^2 + b^2}} = \frac{|a'x + b'y - c'|}{\sqrt{a'^2 + b'^2}}$$

$$\frac{|2x - 2y - 1|}{\sqrt{13}} = \frac{|2x + 3y - 3|}{\sqrt{13}} \begin{cases} 2x - 2y - 1 = 2x + 3y - 3 \rightarrow \boxed{y = x + 2} \\ 2x - 2y - 1 = 3 - 2x - 3y \rightarrow \boxed{y = -\frac{1}{2}x + 2} \end{cases}$$



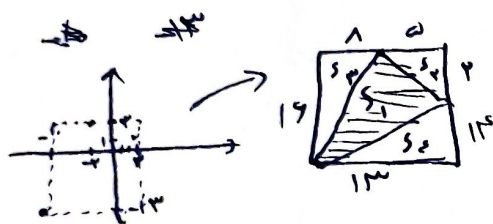
$$\tan \theta = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-2)}{4 - 0} = -2 \rightarrow \tan \alpha = \left| \frac{2 - (-2)}{4 - 0} \right| = 1$$

$$\rightarrow \begin{cases} \alpha = 45^\circ \text{ عند التقاطع} \\ \alpha = 135^\circ \text{ في باقي الزوايا} \end{cases}$$

$$d = \sqrt{(5-(-2))^2 + (-2-2)^2} = \underline{10}$$

$$\begin{aligned} x_c &= \frac{(-2)+3}{2} = -\frac{1}{2} \\ y_c &= \frac{5-2}{2} = \frac{3}{2} \end{aligned} \quad \left. \right\} \rightarrow \boxed{c \begin{pmatrix} -1 \\ 1 \end{pmatrix}}$$

$$\begin{aligned} x_G &= \frac{-1-2+3}{3} = -\frac{2}{3} \\ y_G &= \frac{-13-3+1}{3} = -\frac{15}{3} = -5 \end{aligned} \quad \boxed{G \begin{pmatrix} -2/3 \\ -5 \end{pmatrix}}$$



$$S_{\omega} = 19 \times 13 = S_1 + S_2 + S_3 + S_4 + S_5 + S_6 = S_1 + \omega + 9 + 9 + 9 + 9$$

$$\rightarrow \boxed{S_1 = 19}$$

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

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

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

$$\left. \begin{aligned} y &= \frac{2x+1}{x-3} \\ x' &= x-2 \rightarrow x = x'+2 \\ y' &= y+3 \rightarrow y = y'-3 \end{aligned} \right\} \rightarrow y'-3 = \frac{2(x'+2)+1}{x'+2-3} = \frac{2x'+5}{x'-1}$$

$$y' = \frac{2x'+5}{x'-1} + 3 = \boxed{\frac{5x'+8}{x'-1}}$$

$$\left. \begin{aligned} x' &= x-2 \rightarrow x = x'+2 \\ y' &= y-2 \rightarrow y = y'+2 \end{aligned} \right\} \rightarrow y'+2 = \frac{2(x'+2)+1}{x'+2-2} = \frac{2x'+5}{x'} \rightarrow \boxed{y' = \frac{5}{x'}}$$

$$\begin{aligned} 3x + 5y &= 2 \\ x - 2y &= 1 \end{aligned} \quad \left. \right\} \rightarrow 19y = -1 \rightarrow \boxed{y = -\frac{1}{19}} \quad x = 1 - \frac{2}{19} = \boxed{\frac{17}{19}}$$

$$x = \frac{-(2+10)}{-10-2} = \boxed{\frac{12}{12}} \quad \left. \right\} y = \frac{3-2}{-12} = \boxed{-\frac{1}{12}}$$