

$$x = \frac{x_A + x_B}{2} = \frac{1 + 1}{2} = 1$$

$$y = \frac{y_A + y_B}{2} = \frac{1 + 1}{2} = 1 \quad (-1, 1)$$

(ب)

(الف)

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} = \sqrt{1 + 1} = \sqrt{2}$$

٦

$$\frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} = \frac{1}{2} (x_1 y_2 + x_2 y_3 + x_3 y_1 - x_2 y_1 - x_3 y_2 - x_1 y_3) = \frac{1}{2} (1 \cdot 1 + 1 \cdot 1 + 1 \cdot 1 - 1 \cdot 1 - 1 \cdot 1 - 1 \cdot 1) = \frac{1}{2} (3 - 3) = 0$$

$$x = \frac{x_1 + x_2 + x_3}{3} = \frac{1 + 1 + 1}{3} = 1$$

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

$$(-1, -1)$$

(الف)

٧

$$y = \frac{y_1 + 1}{-x_1 - 1}$$

(ب)

$$-y = \frac{x_1 + 1}{x_1 - 1}$$

(الف)

٨

$$-x = \frac{y_1 + 1}{-x_1 - 1} \quad x_1 y_1 + x_2 y_2 = x_3 y_3 \quad y = \frac{1 + x_1}{x_1 + 1}$$

$$x = \frac{y_1 + 1}{x_1 - 1} \quad x_1 y_1 - x_2 y_2 = x_3 y_3$$

$$y = \frac{x_1 + 1}{x_1 - 1}$$

(٥)

$$\begin{cases} x' = x - 1 \rightarrow x = x' + 1 \\ y' = y + 1 \rightarrow y = y' + 1 \end{cases}$$

$$y' + 1 = \frac{x' + 1 + 1}{x' + 1 + 1}$$

$$y' = \frac{x'}{x' + 1}$$

$$\begin{cases} x' = x - 1 \rightarrow x = x' + 1 \\ y' = y + 1 \rightarrow y = y' + 1 \end{cases}$$

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

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

(٥)

٩

$$x = -\frac{\begin{vmatrix} 1 & -1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}}{\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}} = -\frac{1 + 1 - 1}{-1 - 1} = \frac{1}{2}$$

$$y = \frac{\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}}{\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix}} = \frac{1 + 1 - 1}{-1 - 1} = \frac{1}{2}$$

$$\begin{cases} x + y = 1 \\ x - y = 1 \end{cases} \xrightarrow{+} 2x = 2 \quad 2y = 0 \quad y = 0$$

$$x = \frac{2}{2} = 1$$

$$y = \frac{0}{1} = 0$$

(٥)

١٠

الف) $m=m'$ $m'=\frac{y}{x}=-\frac{1}{2}=m$ $y-2=-\frac{1}{2}(x-4)$ $(-)$ $a=\frac{2(-2)}{(-2)^2+(-1)^2}=-\frac{4}{5}$ $g(x,y)=-f(x,y)$ $y=-\frac{1}{2}x+2$ (2)

$a=\tan \frac{\pi}{4}=\sqrt{2}$ $y-2=\sqrt{2}(x-4)$ $(+)$ $m=-\frac{1}{m'}$ $m'=\frac{1}{\sqrt{2}} \rightarrow m=-\sqrt{2}$ $y-2=-\sqrt{2}(x-4)$ $g=\sqrt{2}x-\sqrt{2}y+2$

$(f(x,y)+f(x,y)-2)/\sqrt{2^2+2^2}=\frac{10}{4}=\frac{5}{2}$

$d=\sqrt{(0-2)^2+(-1-2)^2}=\sqrt{4+9}=5$

$\begin{cases} 5x+4y=1 \\ 5x+4y=12 \end{cases}$

$d=\frac{|12-1|}{\sqrt{5^2+4^2}}=\frac{11}{\sqrt{41}}=\frac{11\sqrt{41}}{41}$

$\begin{cases} 5x+4y=1 \\ 5x+4y=12 \end{cases}$

$5x+4y=\frac{1+12}{2}$ $5x+4y=6.5$

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

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

$2x+3y-3=2x+3y-1$ $x-y=1$ $2x+3y-3=-2x-3y+1$ $4x+6y=-4$ $2x+3y=-2$

$\begin{cases} y-3x=3 & m=-3 \\ y-2x=4 & m'=2 \end{cases}$

$\left| \frac{-3-2}{1-4} \right|=1$

$\tan \alpha=1$

$\alpha=\frac{\pi}{4}$