

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

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

(ب)

(الف)

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

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$$\frac{1}{2} \begin{vmatrix} 1 & 1 \\ 1 & 1 \\ 1 & 1 \\ 1 & 1 \end{vmatrix} = \frac{1}{2} (1 + 1 + 1 + 1) = 2$$

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

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

$$(-1, -1)$$

(الف)

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

(ب)

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

(الف)

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

$$x = \frac{y_1 + 1}{y_1 - 1} \quad x y_1 - x_1 = y_1 + 1$$

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

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

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

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

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

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

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

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$$x = -\frac{\begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix}} = -\frac{1 + 1}{1 - 1} = \frac{1}{0}$$

$$y = \frac{\begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix}} = \frac{1 + 1}{1 - 1} = \frac{1}{0}$$

$$\begin{cases} x + y = 1 \\ x - y = 1 \end{cases} \xrightarrow{+} 2x = 2 \quad 19y = -1$$

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

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

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(الف)

$$m=m' \quad m'=\frac{y}{x}=-\frac{3}{4}=m \quad y_2=-\frac{3}{4}(x-4) \quad \left( \rightarrow \right) \quad a=\frac{2(-2)}{4-4}=-\frac{4}{0} \quad y_2=-f(x-4) \quad y_2=-4x+16$$

$$y_1=-\frac{3}{4}x+3$$

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(ج)

$$a=\tan \frac{\pi}{4}=\sqrt{2} \quad y_2=\sqrt{2}(x-4) \quad \left( \rightarrow \right) \quad m=-\frac{1}{m'} \quad m'=\frac{-1}{\frac{1}{\sqrt{2}}} \rightarrow m=\sqrt{2}$$

$$y_2=\sqrt{2}x-\sqrt{2} \times 4$$

$$y_2=\sqrt{2}x-4\sqrt{2}$$

$$y_2=\sqrt{2}(x-4)$$

(ب)

$$\frac{|f(2)+f(3)-3|}{\sqrt{2^2+2^2}}=\frac{17}{4}$$

$$d=\sqrt{(0-3)^2+(-1-2)^2}=\sqrt{14+9}=5$$

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(الف)

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

(ب)

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

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

$$5x+4y=1.5$$

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

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

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

$$2x+3y-3=2x+3y-1 \quad x-y=1$$

$$2x+3y-3=-2x+3y+1 \quad 4x+y-4=0$$

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

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

$$\tan \alpha=1$$

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

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