

$$a = \frac{2-2}{5-1} = \frac{-1}{4}$$

$$y = -\frac{1}{4}x + b \xrightarrow{(-1, 2)} -2 = -\frac{1}{4} + b \Rightarrow b = -\frac{7}{4}$$

$$\boxed{y = -\frac{1}{4}x - \frac{7}{4}}$$

۱- الف

$$2y + 2x + 1 \rightarrow y = -\frac{1}{2}x - \frac{1}{2} \xrightarrow{a = -\frac{1}{2}} b = -\frac{1}{2}$$

$$y = -\frac{1}{2}x + b \xrightarrow{(-1, 2)} 2 = -\frac{1}{2} + b \xrightarrow{b = \frac{5}{2}} \boxed{y = -\frac{1}{2}x + \frac{5}{2}}$$

$$y = -\frac{1}{2}x + 1 \xrightarrow{a = -\frac{1}{2}} y = \frac{1}{2}x + b \xrightarrow{(-1, 2)} 2 = \frac{1}{2} + b \xrightarrow{b = \frac{3}{2}} \boxed{y = \frac{1}{2}x + \frac{3}{2}}$$

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$$\frac{1}{r} = \frac{1}{\sqrt{a^2 + b^2}} \rightarrow \tan \theta = \frac{b}{a} = \sqrt{3} \Rightarrow a = 1, b = \sqrt{3} \Rightarrow y = \sqrt{3}x + b \xrightarrow{(-1, 2)} 2 = -\sqrt{3} + b \xrightarrow{b = 2 + \sqrt{3}} \boxed{y = \sqrt{3}x + 2 + \sqrt{3}}$$

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$$\sqrt{(1-2)^2 + (-1-2)^2} = \sqrt{1+9} = \sqrt{10} = \Delta$$

$$\frac{|2x + 3y - 3|}{\sqrt{4+9}} = \frac{|4+12-3|}{5} = \frac{15}{5} = 3$$

$$f(x, y) = 1 \Rightarrow 2x + 3y = 1$$

$$2x + 3y = \frac{1+7}{2} \Rightarrow \boxed{2x + 3y = 4}$$

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$$\frac{|1-c'|}{\sqrt{a^2+b^2}} = \frac{|1-2|}{\sqrt{1+9}} = \frac{1}{\sqrt{10}}$$

$$\frac{|2x - 3y - 1|}{\sqrt{4+9}} = \frac{|2x + 3y - 3|}{\sqrt{4+9}} = \frac{2x - 3y - 1}{\sqrt{10}} = \pm \frac{2x + 3y - 3}{\sqrt{10}}$$

$$\Rightarrow 2x - 3y - 1 = 2x + 3y - 3 \Rightarrow \boxed{x - 6y + 1 = 0}$$

$$\Rightarrow 2x - 3y - 1 = -2x - 3y + 3 \Rightarrow \boxed{4x - 4 = 0}$$

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$$y = -\frac{1}{2}x + 1, y = \frac{1}{2}x + 0$$

$$m = -\frac{1}{2}$$

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

$$\tan \alpha = \left| \frac{2 - (-1)}{1 + 2(-\frac{1}{2})} \right| = \left| \frac{3}{0} \right| = 1 \Rightarrow \boxed{\alpha = \frac{\pi}{4} = 45^\circ}$$

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$$\sqrt{(-2-1)^2 + (2-0)^2} = \sqrt{9+4} = \sqrt{13} = \Delta$$

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$$\frac{-2 + \frac{1}{2}}{r} = 1 \Rightarrow y = \frac{2-1}{r} = -1 \Rightarrow \boxed{(-1, 1)}$$

$$x_G = \frac{2-2-1}{3} = -\frac{1}{3}, y_G = \frac{-1+2+1}{3} = \frac{2}{3} \Rightarrow \boxed{(-\frac{1}{3}, \frac{2}{3})}$$

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$$\frac{1}{r} \begin{vmatrix} -1 & -1 & 1 \\ -2 & 2 & 1 \\ 2 & 1 & 1 \end{vmatrix} = \frac{1}{r} (-1 + 2 - 2) = \frac{-1}{r} \Rightarrow \boxed{(-1, 1)}$$

$$y = \frac{-r_n + 1}{-f_n - r}$$

(-)

$$-y = \frac{r_n + 1}{f_n - r}$$

(2) - 1

$$-n = \frac{-r_y + 1}{-f_y - r} \Rightarrow -f_n y + r_n = -r_y + 1 \quad (-)$$

$$-f_n y + r_y = 1 - r_n$$

$$y(-f_n + r) = 1 - r_n \Rightarrow y = \frac{1 - r_n}{-f_n + r}$$

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$$n = \frac{r_y + 1}{f_y - r} \Rightarrow f_y n - r_n = r_y + 1$$

$$f_y n - r_y = r_n + 1$$

$$y(f_n - r) = r_n + 1 \Rightarrow y = \frac{r_n + 1}{f_n - r}$$

(2)

$$\left. \begin{array}{l} y' = y + r \rightarrow y = y' - r \\ n' = n - r \rightarrow n = n' + r \end{array} \right\} y' - r = \frac{r(n' + r) + 1}{n' + r - r} = y' = \frac{r_n' + 0}{n' - 1} + r = y' = \frac{r_n' + 0 + r_n' - r}{n' - 1} \quad (9) \quad (-)$$

$$\left. \begin{array}{l} y' = y - r \rightarrow y = y' + r \\ n' = n - r \rightarrow n = n' + r \end{array} \right\}$$

$$y' + r = \frac{r(n' + r) + 1}{n' + r - r} = y' = \frac{r_n' + r}{n' - 1} - r \Rightarrow y' = \frac{r_n' + r - r_n' - r}{n' - 1}$$

$$\Rightarrow y' = \frac{r_n' + r}{n' - 1}$$

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$$\Rightarrow y' = \frac{r}{n'}$$

$$\left. \begin{array}{l} r_n + f_y = r \\ n - 0y = 1 \end{array} \right\} \Rightarrow \left. \begin{array}{l} r_n + f_y = r \\ -r_n + 10y = -r \end{array} \right\} \quad 19y = -1 \Rightarrow y = -\frac{1}{19}$$

(10) الف

$$n = -\frac{\begin{vmatrix} b & c \\ b' & c' \end{vmatrix}}{\begin{vmatrix} a & b \\ a' & b' \end{vmatrix}} = -\frac{\begin{vmatrix} f & r \\ -\Delta & 1 \end{vmatrix}}{\begin{vmatrix} r & f \\ 1 & -\Delta \end{vmatrix}} = -\frac{f + 1}{-1\Delta - f} = \frac{1f}{19}$$

$$y = \frac{\begin{vmatrix} a & c \\ a' & c' \end{vmatrix}}{\begin{vmatrix} a & b \\ a' & b' \end{vmatrix}} = \frac{\begin{vmatrix} r & r \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} r & f \\ 1 & -\Delta \end{vmatrix}} = \frac{-1}{19}$$

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