

$$m_1 = m_2 = \frac{-y}{x} = -\frac{2}{3} \quad \checkmark$$

$$y = -\frac{2}{3}x + 1 \quad \checkmark$$

(ب)

روسی داد

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-2)}{4 - 0} = -\frac{4}{4} = -1 \quad \checkmark$$

$$y = -x + 1 \quad \checkmark$$

(الف)

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

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

(ج)

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

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

$$y = 3x - 10 \quad \checkmark$$

(ج)

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

(الف)

(۲)

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

(ب)

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$$\begin{cases} 2x + 3y = 1 \\ 2x + 3y = 12 \end{cases} \rightarrow \begin{cases} (12+1) \\ 2x + 3y = 13 \end{cases} \rightarrow 2x + 3y = 13 \quad \checkmark$$

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$$\text{فاصله} = \frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{2}{2\sqrt{13}} = \frac{\sqrt{13}}{13} \quad \checkmark$$

(ب)

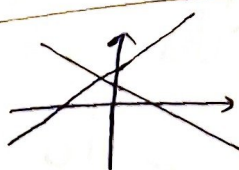
$$\frac{|ax + by - c|}{\sqrt{a^2 + b^2}} = \frac{|a'x + b'y - c'|}{\sqrt{a'^2 + b'^2}}$$

$$\frac{|2x - 2y - 1|}{\sqrt{13}} = \frac{|2x + 3y - 3|}{\sqrt{13}}$$

$$\begin{cases} 2x - 2y - 1 = 2x + 3y - 3 \rightarrow y = x + 2 \quad \checkmark \\ 2x - 2y - 1 = 3 - 2x - 3y \rightarrow y = -\frac{4}{5}x + \frac{4}{5} \quad \checkmark \end{cases}$$

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$$\begin{cases} y + 3x = 3 \rightarrow m = -\frac{1}{3} \\ y = 3x + 0 \rightarrow m = 3 \end{cases} \rightarrow \tan \alpha = \left| \frac{3 - (-\frac{1}{3})}{1 - 3(-\frac{1}{3})} \right| = 1$$

(۲)

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$$\rightarrow \begin{cases} \alpha = 45^\circ \text{ میانه} \\ \alpha = 135^\circ \text{ بیرون} \end{cases} \quad \checkmark$$

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

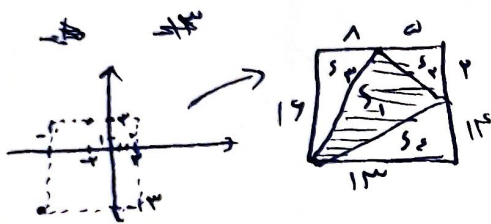
$$\begin{aligned} x_c &= \frac{(-2)+3}{2} = -\frac{1}{2} \\ y_c &= \frac{5-2}{2} = \frac{3}{2} \end{aligned} \quad \left. \right\} \rightarrow \boxed{c \begin{pmatrix} -1 \\ 1 \end{pmatrix}} \quad \checkmark$$

(2) 9

$$\begin{aligned} x_G &= \frac{1-(-2)+3}{3} = -\frac{2}{3} \\ y_G &= \frac{-13-3+1}{3} = -\frac{15}{3} = -5 \end{aligned} \quad \left. \right\} \rightarrow \boxed{G \begin{pmatrix} -\frac{2}{3} \\ -5 \end{pmatrix}} \quad \checkmark$$

(2)

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$$\begin{aligned} S_{\text{total}} &= 13 \times 13 = S_1 + S_2 + S_3 + S_4 + S_5 + S_6 = S_1 + S_2 + 4S_5 + 4S_6 \\ \rightarrow S_1 &= 13 \end{aligned} \quad \checkmark$$

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

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

(2) 1

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

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

(2) 9

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

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

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

(2) 10

$$\left. \begin{aligned} x &= \frac{-(2+10)}{-10-2} = \boxed{\frac{12}{17}} \\ y &= \frac{3-2}{-17} = \boxed{-\frac{1}{17}} \end{aligned} \right\} \quad \checkmark$$