

$$\text{الف) حاصل} = \sqrt{(dx)^2 + (dy)^2} = \sqrt{(4)^2 + (-1)^2} = \sqrt{16+1} = 1.$$

(الف)

$$\begin{aligned} m/x &= \frac{-5+3}{2} = -1 \\ y &= \frac{3-2}{2} = 1 \end{aligned} \Rightarrow m \text{ نقطه } / -1$$

(ب)

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$$\begin{aligned} G/x &= \frac{3-2-1}{3} = -3 \\ y &= \frac{3+1-1 \cdot 3}{3} = -3 \end{aligned}$$

الف) مرکز ثقل را G در نظر بگیرید:

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$$\frac{1}{3} x \begin{vmatrix} 3 & 1 & 1 \\ -2 & 3 & 1 \\ -1 & -3 & 1 \end{vmatrix} = \frac{1}{3} \left(\begin{vmatrix} 3 & 1 \\ 3 & 1 \end{vmatrix} + \begin{vmatrix} -1 & 1 \\ 1 & -1 \end{vmatrix} + \begin{vmatrix} 3 & 1 \\ -1 & -3 \end{vmatrix} - \begin{vmatrix} -1 & 1 \\ 3 & 1 \end{vmatrix} - \begin{vmatrix} 3 & 1 \\ -1 & -3 \end{vmatrix} - \begin{vmatrix} -1 & 1 \\ 3 & 1 \end{vmatrix} \right) = \frac{1}{3} (0 + 0 + 10 - 4 - 10 - 4) = \frac{1}{3} (-8)$$

(ب)

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

(ب) x متغیر مستقل

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

$$x = \frac{2y+1}{5y-3} \rightarrow 5xy - 3x = 2y+1 \rightarrow y(5-x) = -3x-1 \rightarrow y = \frac{-3x-1}{5-x}$$

(2) جای x و y عوض شود:

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

(3) جای x و y عوض و مقیم شود:

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

$$\rightarrow y' = \frac{x' + 5 + 3x' - 3}{x' - 1} \Rightarrow y' = \frac{4x' + 2}{x' - 1}$$

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$$\begin{aligned} x' &= x - 3 \rightarrow x = x' + 3 \\ y' &= y - 2 \rightarrow y = y' + 2 \end{aligned} \Rightarrow y' + 2 = \frac{2(x' + 3) + 1}{x' + 3 - 2} \Rightarrow \frac{x' + 7}{x'} - 2 = y' \Rightarrow y' = \frac{x' + 7 - 2x'}{x'} = \frac{-x' + 7}{x'}$$

$$\Rightarrow y' = \frac{7-x'}{x'}$$

$$2x + 5y = 2 \rightarrow 2x + 5y = 2$$

$$\begin{aligned} 2-5y &= 2 \xrightarrow{\times (-1)} -2+5y = -2 \rightarrow 5y = 0 \rightarrow y = 0 \text{ و } x = \frac{2}{2} = 1 \end{aligned}$$

(الف)

$$\begin{aligned} x &= -\frac{\begin{vmatrix} 4 & 2 \\ -5 & 1 \end{vmatrix}}{\begin{vmatrix} 2 & 5 \\ 1 & -5 \end{vmatrix}} = -\frac{4-10}{-10-5} = \frac{6}{-15} = -\frac{2}{5} \\ y &= \frac{\begin{vmatrix} 2 & 2 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 2 & 5 \\ 1 & -5 \end{vmatrix}} = \frac{0}{-10-5} = 0 \end{aligned}$$

(ب)

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