

مسئله: از معادله خطی عبور می کند

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بهار شاد

① نقطه $(4, 2)$ از معادله خطی عبور می کند

الف) $\begin{vmatrix} 5 \\ -2 \end{vmatrix}$

$$m = \frac{2+2}{4-5} = -4 \quad (y-2) = -4(x-4)$$

$$\rightarrow \boxed{y = -4x + 18}$$

ب) $2y + 2x = 1$ موازی

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

$$(y-2) = -1(x-4) \rightarrow \boxed{y = -x + 6}$$

ج) $x + 3y = 1$ عمود

$$m = -\frac{1}{3} \quad m' = +3$$

$$\rightarrow (y-2) = 3(x-4) \rightarrow \boxed{y = 3x - 10}$$

د) $\frac{\pi}{3}$ و $\frac{\pi}{6}$ زاویه

$$\frac{\pi}{3} \rightarrow \gamma \rightarrow \tan \gamma = \frac{\sin \gamma}{\cos \gamma} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$$

$$(y-2) = \sqrt{3}(x-4) \rightarrow \boxed{y = \sqrt{3}x - 4\sqrt{3} + 2}$$

② $\begin{vmatrix} 2 \\ 3 \end{vmatrix}$

الف) $d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{3^2 + (-2)^2} = \sqrt{13}$

ب) $3x + 4y = 3$

$$d = \frac{|2+12-3|}{\sqrt{3^2+4^2}} = \frac{11}{5}$$

$$x_n + y = 1 \quad \text{و} \quad y + x_n = 2 \quad (3)$$

الف) (1) $x_n + y = \frac{1+1}{2} = x_n + y = 1$

ب) (2) $\frac{|1-1|}{\sqrt{1^2+1^2}} = \frac{0}{\sqrt{2}} = 0 = \frac{2\sqrt{1^2}}{1^2}$

ج) (3) $x_n - y = 1$ و $x_n + y = 2$

$$\frac{|x_n - y - 1|}{\sqrt{1+1}} = \frac{|x_n + y - 2|}{\sqrt{1+1}}$$

$$x_n - y - 1 = x_n + y - 2 \rightarrow x - y = -1$$

$$x_n - y - 1 = -x_n - y + 2 \rightarrow x + y = 3$$

د) (4) $y = x_n + 1$ و $y - x_n = 2$

$$y = x_n + 1 \rightarrow m = 1$$

$$y - x_n = 2 \rightarrow m' = 2$$

$$\tan \alpha = \left| \frac{m - m'}{1 + mm'} \right|$$

$$\left| \frac{1 - 2}{1 + (-2)} \right| = 1 \rightarrow \tan \alpha = 1 \rightarrow \alpha = 45^\circ$$

$$B = \frac{1 - \frac{1}{2}}{1 + \frac{1}{2}}$$

هـ) (5) $B \left| \frac{-1}{2} \right|$ و $A \left| \frac{1}{-2} \right|$

$$\alpha = \sqrt{(-1)^2 + (2)^2} = 1$$

$$\mu \left| \frac{-1+2}{2} \right| = -1$$

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

و) (6) $\frac{1}{2}$

$$\begin{vmatrix} -1 & -2 & 3 \\ -1 & 3 & 1 \end{vmatrix}$$

$$a_1 \begin{vmatrix} -1 & 2 & 3 \\ -1 & 3 & 1 \end{vmatrix} = \frac{-1 \cdot 2 + 3}{3} = \frac{1}{3}$$

مقدار (الف)

$$S = \frac{1}{3} \begin{vmatrix} 3 & 1 & 1 \\ -2 & 3 & 1 \\ -1 & -1 & 3 \end{vmatrix} \Rightarrow$$

(ب) S صفت:

$$\frac{1}{3} (9 - 10 + 24 + 3 + 2 + 39) = 41$$

$$y = \frac{2x+1}{4x-3}$$

(1)

$$-y = \frac{2x+1}{4x-3}$$

(الف) قرینه نسبت: 21

$$y = \frac{2x+1}{-4x-3}$$

(ب) قرینه نسبت: 3

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

(ج) قرینه ساز اول و دوم:

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

(د)

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

(9)

$$x' = x-3 \rightarrow x = x'+3$$

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

(الف) 3

$$\rightarrow \frac{2x'+5}{x'+5}$$

$$x' = x-3 \rightarrow x = x'+3$$

$$y' = y-2 \rightarrow y = y'+2$$

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

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

→

$$19x + 19y = 1$$

: (1)

$$19x - 12y = 1$$

$$19y = -1 \rightarrow y = -\frac{1}{19}, \quad x = \frac{-12}{-19}$$

$$x = \frac{\begin{vmatrix} 1 & 1 \\ -2 & 1 \end{vmatrix}}{\begin{vmatrix} 19 & 19 \\ 1 & -2 \end{vmatrix}} = \frac{1}{19}$$

: (2)

$$y = \frac{\begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 19 & 19 \\ 1 & -2 \end{vmatrix}} = -\frac{1}{19}$$