

۲۰ عالی نوشتار!

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انت $m = \frac{\Delta y}{\Delta x} \Rightarrow \frac{2 - (-2)}{4 - 5} = -4 \Rightarrow -4x + b = y \Rightarrow -4 \times 4 + b = 2 \Rightarrow y = -4x + 18$ ✓
 $\hookrightarrow b = 18 \rightarrow$

ب $y = \frac{-5x - 1}{2} \Rightarrow m = -2.5 \Rightarrow -2.5x + b = y \Rightarrow -2.5 \times 4 + b = 2 \Rightarrow -10 + b = 2 \Rightarrow b = 12$ ✓

ج $m = -\frac{1}{3} \Rightarrow m \times m' = -1 \Rightarrow m' = 3 \Rightarrow 3x + b = y \Rightarrow 3 \times 4 + b = 2 \Rightarrow 12 + b = 2 \Rightarrow b = -10$ ✓

د $\tan \frac{\pi}{4} = \sqrt{3} \Rightarrow \sqrt{3}x + b = y \Rightarrow \sqrt{3} \times 4 + b = 2 \Rightarrow b = 2 - 4\sqrt{3}$ ✓

انت $Moli = \sqrt{(\Delta x)^2 + (\Delta y)^2} \Rightarrow \sqrt{(4 - (-1))^2 + (2 - (-2))^2} = 5$ ✓

انت $Moli = \frac{|ax + by + c|}{\sqrt{a^2 + b^2}} \Rightarrow \frac{|3 \times 2 + 4 \times 2 - 11|}{\sqrt{3^2 + 4^2}} = \frac{15}{5} = 3$ ✓

انت ابتدا نظریات (خط بالایی) و (خط پایینی) کنیم $4x + 5y = 18 \div 2 \Rightarrow 2x + 2.5y = 9$ ←

\Rightarrow معادله خط وسط $= ax + by + \frac{c + c'}{2} \Rightarrow 2x + 2.5y + \frac{9 + 15}{2} \Rightarrow 2x + 2.5y - 12 = 0$ ✓

انت $Moli = \frac{|c - c'|}{\sqrt{a^2 + b^2}} \Rightarrow \frac{|9 - 15|}{\sqrt{2^2 + 2.5^2}} = \frac{6}{\sqrt{13}}$ ✓

$\frac{|ax + by + c|}{\sqrt{a^2 + b^2}} = \frac{|a'x + b'y + c'|}{\sqrt{a'^2 + b'^2}} \Rightarrow \frac{|3x - 2y - 1|}{\sqrt{13}} = \frac{|2x + 2.5y - 11|}{\sqrt{13}}$

$\Rightarrow 3x - 2y - 1 = 2x + 2.5y - 11 \Rightarrow x - 4.5y + 10 = 0$ ✓

$\Rightarrow 3x - 2y - 1 = 1 + 2x - 2.5y \Rightarrow x + 0.5y - 2 = 0$ ✓

انت $\alpha = \left| \frac{m - m'}{1 + mm'} \right| \Rightarrow \alpha = \left| \frac{-2 - 2}{1 + (-2 \times 2)} \right| = \left| \frac{-4}{-3} \right| = 1$

$m = -2 \quad m' = 2 \Rightarrow \alpha = 1$ ✓

$y = -2x + 3$
 $y = 2x + 5$

$$\text{نقطه مولي} = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{\left(\frac{3-(-5)}{2}\right)^2 + \left(\frac{-2-(-4)}{2}\right)^2} = 1.0 \quad \checkmark \quad (\text{الف})$$

$$\begin{aligned} \text{نقطه مولي} &\Rightarrow M\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right) = \left(\frac{3+(-5)}{2}, \frac{-2+(-4)}{2}\right) \\ &\Rightarrow M(-1, -3) \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{نقطه مولي} &\Rightarrow M\left(\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3}\right) = M\left(\frac{3+(-2)+(-1)}{3}, \frac{1+2+(-4)}{3}\right) \\ &\Rightarrow M(-2, -2) \quad \checkmark \end{aligned}$$

$$\frac{1}{2} \begin{vmatrix} -1 & -1 & 1 \\ -2 & 2 & 1 \\ 3 & 1 & 1 \end{vmatrix} \Rightarrow \frac{1}{2} \left[(-1)(-2)(1) + (-1)(1)(1) - (1)(-2)(1) - (1)(-1)(1) - (-1)(1)(1) - (-1)(3)(1) \right] = \frac{1}{2} \times 9 = \frac{9}{2} \quad \checkmark$$

$$y = \frac{2x+1}{5x-2} \Rightarrow y = \frac{-2x-1}{5x-2} \quad \checkmark$$

$-y \leftarrow y$ (الف)

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

$-x \leftarrow x$ (ب)

$$x = \frac{2y+1}{5y-2} \Rightarrow y = \frac{-2x-1}{5x-2} \Rightarrow y = \frac{2x+1}{5x-2} \quad \checkmark$$

$x \leftarrow y$
 $y \leftarrow x$ (ج)

$$-x = \frac{-2y+1}{-5y+2} \Rightarrow x = \frac{2y+1}{-5y+2} \Rightarrow y = \frac{-2x+1}{-5x+2} \Rightarrow y = \frac{2x+1}{5x+2} \quad \checkmark$$

$-x \leftarrow y$
 $-y \leftarrow x$ (د)

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

(الف)

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

(ب)

$$\begin{aligned} 2x+5y &= 2 \\ x-2y &= 1 \end{aligned} \Rightarrow 19y = -1 \Rightarrow y = -\frac{1}{19} \quad \checkmark \Rightarrow 2x + \left(-\frac{1}{19}\right) = 2 \Rightarrow x = \frac{18}{19} \quad \checkmark$$

(الف)

$$x = \frac{\begin{vmatrix} 2 & 5 \\ -1 & -2 \end{vmatrix}}{\begin{vmatrix} 2 & 5 \\ 1 & -2 \end{vmatrix}} = \frac{18}{19} \quad y = \frac{\begin{vmatrix} 2 & 2 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 2 & 5 \\ 1 & -2 \end{vmatrix}} = -\frac{1}{19}$$

(ب)