

دو خط موازی

$$m_1 m_2 = -1$$

19, 25

$$C \begin{vmatrix} \frac{3}{5} & \frac{4}{5} \\ \frac{1}{5} & \frac{3}{5} \end{vmatrix} \rightarrow C \begin{vmatrix} 3 \\ 1 \end{vmatrix}$$

دو خط موازی

$$m_{AB} = \frac{-4-1}{5-2} = -5$$

$$m_d = \frac{1}{5} \rightarrow$$

$$y = \frac{1}{5}x + b \xrightarrow{\begin{matrix} x+b=1 \\ b=\frac{4}{5} \end{matrix}} \boxed{y = \frac{1}{5}x + \frac{4}{5}} \checkmark$$

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$$BC \text{ طول} = \sqrt{3^2 + 4^2} = 5 \checkmark$$

$$m = \frac{4}{3}$$

$$m_{BC} = \frac{4-3}{-2+1} = -\frac{4}{1} = -4, m_{DC} \propto m_{AH} = -1 \rightarrow m_{AH} = \frac{1}{4}$$

$$AH: y = \frac{1}{4}x + b \xrightarrow{\begin{matrix} 1 = \frac{1}{4}x + b \\ 1 = \frac{1}{4} + b \\ b = \frac{3}{4} \end{matrix}} y = \frac{1}{4}x + \frac{3}{4}$$

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$$H \Rightarrow AH = BC \text{ طول} = BC: y = -\frac{4}{3}x + \frac{10}{3} \rightarrow 4y + 3x = 10$$

$$dA \leftrightarrow BC \Rightarrow \frac{|(3 \times 4) - (1 \times 3)|}{5} = \boxed{2} \checkmark$$

$$\text{جواب: } 5 - 2 = \boxed{3}$$

$$\left. \begin{array}{l} 2y = x + 4 \rightarrow m = \frac{1}{2} \\ 4y = ax + 2 \rightarrow m = \frac{a}{4} \end{array} \right\} \frac{a}{4} = \frac{1}{2} \rightarrow a = 2$$

$$\text{مساحت} = 2r = \frac{4-1}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$$

$$2y = x + 4$$

$$r = \frac{3}{\sqrt{5}} \rightarrow S = \pi r^2 = \frac{9\pi}{5} = \boxed{1.8\pi} \checkmark$$

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$$AB: m = \frac{3-1}{2-5} = -\frac{2}{3} \rightarrow y = -\frac{2}{3}x + 2$$

$$m_{HC} = -\frac{1}{m_{AB}} \Rightarrow y = x - 2 \text{ (HC)}$$

$$H \Rightarrow y = x - 2 = -x + 2 \rightarrow x = \frac{4}{2}, y = \frac{2}{2} \rightarrow H \begin{vmatrix} 2 \\ 1 \end{vmatrix}$$

$$M: x = \frac{2+5}{2} = \frac{7}{2}, y = \frac{1+3}{2} = 2 \rightarrow M \begin{vmatrix} \frac{7}{2} \\ 2 \end{vmatrix}$$

$$MH = \sqrt{(2 - \frac{7}{2})^2 + (1 - 2)^2} = \sqrt{\frac{9}{4} + 1} = \sqrt{\frac{13}{4}} = \frac{\sqrt{13}}{2} \checkmark$$

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$$m_1 \times m_2 = -1$$

$$-\frac{(4m-2)}{2-m} \times \frac{m+1}{4m-2} = -1 \rightarrow 4m^2 - 2 + m = -4m^2 - 2 + 4m \rightarrow 8m^2 - 3m = 0 \rightarrow 8m^2 - 13m + 1 = 0$$

$$m = \frac{13 \pm \sqrt{169 - 32}}{16} \rightarrow 2 \text{ جواب}$$

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$$\frac{4m^2 - 2 + m}{4m^2 - 2 - 4m} + 1 = 0 \rightarrow 4m^2 - 2 + m + 4m^2 - 2 - 4m = 0 \rightarrow 8m^2 - 3m = 0 \rightarrow 8m^2 - 13m + 1 = 0$$

$$\checkmark \text{ جواب صحیح نهاده}$$

$$B: x+3 = 1-2x \rightarrow B \begin{vmatrix} 0 \\ -1 \end{vmatrix}$$

$$C: 2x-1 = 5-x \rightarrow C \begin{vmatrix} 0 \\ -1 \end{vmatrix}$$

$$A: 3-x = 5-x-2 \rightarrow A \begin{vmatrix} 1 \\ 1 \end{vmatrix}$$

$$m_{AH} = 1 \rightarrow y = x \rightarrow H: x = 5-x \rightarrow H \begin{vmatrix} 2 \\ 2 \end{vmatrix}$$

$$AM = \sqrt{\frac{2^2}{4} + \frac{1}{4}} = \frac{\sqrt{5}}{2} \rightarrow \frac{\frac{\sqrt{5}}{2}}{\frac{1}{2}} = \boxed{\frac{\sqrt{5}}{1}} \checkmark$$

$$AH = \sqrt{2} = \sqrt{2}$$

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$$y = -\frac{1}{2}x + b \rightarrow 2y + x - b = 0 \rightarrow 2y + x + 10 = 0$$

$$\frac{-b}{\sqrt{a^2+b^2}} = \sqrt{2} \Rightarrow b = -10$$

$$\left. \begin{array}{l} \text{فاصله از مبدأ} = -5 \\ \text{فاصله از مبدأ} = -10 \\ y=0 \rightarrow x = -10 \end{array} \right\} | -10 - (-5) | = \boxed{5}$$

فاصله اینجوریه؟

این از حالت!

$$\sqrt{(5)^2 + (10)^2} = \sqrt{125}$$

حالت دوم:

(0, 5)

(10, 0)

فاصله: $\sqrt{125}$

را در حل صفحه بعد وین

$$y = 0$$

$$y = (1-m)x + 2$$

$$y = \frac{2}{m}x + 2$$

$$\begin{vmatrix} \frac{2}{m} \\ 0 \end{vmatrix}, \begin{vmatrix} -\frac{2}{m} \\ 0 \end{vmatrix}, \begin{vmatrix} 0 \\ 2 \end{vmatrix}$$

$$(1-m)x + 2 = \frac{2}{m}x + 2 \rightarrow x=0 \rightarrow y=2$$

$$1-m = \frac{2}{m} \rightarrow m^2 - m + 2 = 0$$

(1, 5) ✓

$$\frac{2 \times \left(\frac{2}{m-1} + \frac{2}{m} \right)}{2} = \frac{2}{2} \rightarrow \frac{2+m^2-m}{2m-2} = \frac{2}{2} \rightarrow 2m-2 = m^2-m+2$$

$$\rightarrow m^2 - 4m + 4 = 0 \rightarrow (m-2)^2 = 0 \rightarrow m = 2$$

$$\rightarrow m^2 - 4m + 4 = 0 \rightarrow (m-2)^2 = 0 \rightarrow m = 2$$

$$m^2 + 4m - 1 = 0 \rightarrow \frac{c}{a} = -1$$

$$\rightarrow -3$$

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

$$2x-3 = -\frac{1}{2}x-1 \rightarrow 2.0x = 2 \rightarrow x = 0.1, y = -1.2$$

$$\begin{array}{cc} 2 & 0.1 \\ -2 & -1.2 \end{array} \quad \begin{array}{cc} x' & (0.1) \times 2 = 2 + x' \rightarrow x' = -\frac{4}{5} \\ y' & (-1.2) \times 2 = y' - 2 \rightarrow y' = -\frac{1}{10} \end{array}$$

$$\rightarrow \begin{vmatrix} -\frac{4}{5} \\ -\frac{1}{10} \end{vmatrix}$$

معادله قدرینه فقط رو می‌خواهیم!

جواب صفحه بعد...

$$\left. \begin{array}{l} 1 \quad x_{(-1)} \quad a \\ 2 \quad x_{(2)} \quad b \end{array} \right\} \begin{array}{l} 2x = a+1 \\ 2x+10 = 2+b \end{array} \rightarrow a+1+10 = 2+b$$

$$y = -x + b' \xrightarrow{\substack{-2 = -1 + b' \\ b' = 3}} y = -x + 3 \quad y = -x + 3 = x + 0 \rightarrow x = -1, y = 3$$

$$\left. \begin{array}{l} 1 \quad -1 \quad a \rightarrow a = -3 \\ 2 \quad 3 \quad b \rightarrow b = 4 \end{array} \right\} \rightarrow 2b - a = 12 + 3 = \boxed{15} \checkmark$$

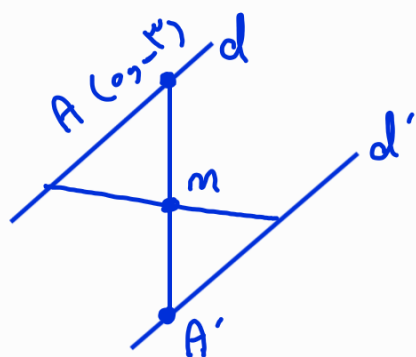
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$$m = -\frac{1}{r} \rightarrow y = -\frac{1}{r}x + C \rightarrow ry + x - rC = 0$$

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فاصله مبدأ از خط : $\frac{|r(0)+0-rC|}{\sqrt{r^2+1}} = \frac{|rC|}{\sqrt{5}} = \sqrt{r^2} \rightarrow C = \pm r$

$$\left\{ \begin{array}{l} C = r \rightarrow y = -\frac{1}{r}x + r \rightarrow \begin{cases} A(0, r) \\ B(1, 0) \end{cases} \rightarrow AB = \sqrt{1+r^2} \\ C = -r \rightarrow y = -\frac{1}{r}x - r \rightarrow \begin{cases} A(0, -r) \\ B(-1, 0) \end{cases} \rightarrow AB = \sqrt{1+r^2} \end{array} \right.$$



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نقطه $A(0, -3)$ روی خط $y = 2x - 3$

قرار دارد، M میانه بین دو نقطه A و A' :

$$\frac{\alpha + 0}{2} = 2 \rightarrow \alpha = 4$$

$$\rightarrow A' \begin{vmatrix} 4 \\ -1 \end{vmatrix}$$

$$\frac{\beta - 3}{2} = -2 \rightarrow \beta = -1$$

حالا دو خط d و d' با هم موازی و شیب برابر دارند :

$$d' : y - (-1) = 2(x - 4) \rightarrow y = 2x - 9$$