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بدرستی محاسبه شده

2 ①

A1/r

الف) A1/r

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{r}{-1} = -r$$

$$y = ax + b \rightarrow y = -rx + b \xrightarrow{(E/r)} r = \frac{rx - b}{-1} + b$$

$$y = -rx + b$$

$$b = r$$

ب) $2y + 4x = -1$

خط موازی

A1/r $\frac{-r}{mr}$

$$y = -rx + b \xrightarrow{(E/r)}$$

$m_1 \rightarrow 2y + 4x + 1 = 0$

$2y = -4x - 1$

از آنجا که $m_1 = m_2 = \frac{-x_{موازی}}{y_{موازی}} = \frac{-y}{r} = -r$

$r = -rx + b$

$-1r$

$b = 1r$

$= 4 + 8$

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

ج) $x + 3y = 1$

$m_1 \times m_2 = -1 \rightarrow -\frac{1}{r} \times m_2 = -1$

$\rightarrow \frac{-x_{موازی}}{y_{موازی}} = \frac{-1}{r}$

$m_2 = r$

$y = rx + b \xrightarrow{(E/r)}$

$3y = -x + 1 \Rightarrow y = \left(-\frac{1}{3}\right)x + \frac{1}{3}$

$1r + b = r$

$b = -1$

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

$\rightarrow y = rx + b$

د) $m = \tan \frac{R}{r} = \sqrt{r}$



$y = \sqrt{r}x + b \xrightarrow{(E/r)} r = r\sqrt{r} + b$

$(E/r) b = r - r\sqrt{r}$

$y = \sqrt{r}x + r - r\sqrt{r}$

② 1r

الف) $\text{فاصله بین دو خط} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} = \sqrt{\frac{(r - (-1))^2}{9} + \frac{(1r - \sqrt{r})^2}{14}} = \sqrt{r} = \Delta$

5

ب) $rx + ry = r$
 $\text{فاصله} = \frac{|ax + by + c|}{\sqrt{a^2 + b^2}} = \frac{|\frac{r}{r}x + \frac{r}{r}y - r|}{\sqrt{1 + 1}} = \frac{|x + y - r|}{\sqrt{2}} = \frac{r}{\sqrt{2}}$

3)

لحل

$$\begin{cases} 3x + 4y = 4 \rightarrow 3x + 4y = 12 \\ 3x + 4y = 1 \end{cases} \quad C$$

لحل

$$\frac{y}{4} = \frac{3}{4} \neq \frac{y}{1}$$

مختلفة نسبية

$$3x + 4y = C$$

$$3x + 4y = \frac{C + C'}{1} = \frac{12 + 1}{1} = 13$$

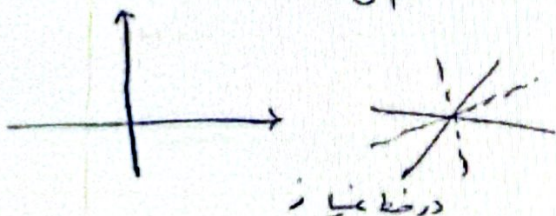
$$\Rightarrow 3x + 4y = 13$$

5)

ب)

$$\frac{|C - C'|}{\sqrt{a^2 + b^2}} = \frac{|12 - 1|}{\sqrt{3^2 + 4^2}} = \frac{11}{5} = \frac{11}{5} = \frac{11}{5} = \frac{11}{5}$$

ج)



$$\frac{|ax + by + c|}{\sqrt{a^2 + b^2}}$$

5)

$$3 \times (3x + 4y = 3) \rightarrow 9x + 12y = 9$$

$$2 \times (3x - 4y = 1) \rightarrow 6x - 8y = 2$$

$$9x - 6x = \frac{9}{12} - \frac{2}{8}$$

$$3x = \frac{1}{4} \Rightarrow x = \frac{1}{12}$$

$$9x = \frac{9}{12} - \frac{2}{8} = \frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2} \Rightarrow x = \frac{1}{12}$$

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

$$|3x + 4y - 3| = |3x - 4y - 1|$$

$$\Rightarrow 3x + 4y - 3 = 3x - 4y - 1 \Rightarrow 8y = 2 \Rightarrow y = \frac{1}{4}$$

7)

$$y - 3x = 8 \Rightarrow y = 3x + 8$$

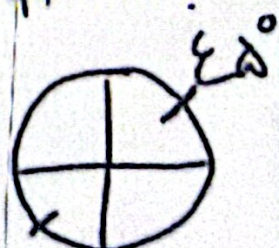
$$y + 3x = 3 \Rightarrow y = -3x + 3$$

$$\tan(\alpha \pm \beta) = \frac{\tan \alpha \pm \tan \beta}{1 \mp \tan \alpha \tan \beta} \Rightarrow \tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \tan \beta}$$

⊕

$$\tan(\alpha - \beta) = \frac{\tan \alpha - \tan \beta}{1 + \tan \alpha \tan \beta}$$

$$(\alpha - \beta) = \frac{\tan \alpha - \tan \beta}{1 + \tan \alpha \tan \beta}$$



4)

$$\text{ا) } \frac{x_1 - x_2}{\sqrt{x_1^2 + x_2^2}} = \sqrt{\frac{(x_1 - x_2)^2}{x_1^2 + x_2^2}} = \sqrt{\frac{(x - (-2))^2}{x^2} + \frac{(-x - 2)^2}{x^2}} = 1$$

$$\text{ب) } x = \frac{x_1 + x_2}{2} = \frac{x - 2}{2} = -1 \quad (-1, 1)$$

$$y = \frac{y_1 + y_2}{2} = \frac{x - 2}{2} = 1$$

5)

$$\text{ا) } G \Rightarrow \frac{x_1 + x_2 + x_3}{3} = x_G \quad \frac{y_1 + y_2 + y_3}{3} = y_G$$

$$\frac{x - 2 - 1}{3} = -x \quad \frac{1 + x - 1x}{3} = -x \quad G = (-x, -x)$$

$$\text{ب) } \frac{1}{3} \begin{bmatrix} x & 1 & 1 \\ -2 & x & 1 \\ -1 & -1 & x \end{bmatrix} \begin{matrix} \text{①} \times \text{②} \\ \text{③} \times \text{①} \end{matrix} \quad \left| \frac{9}{3 \times 3 \times 1} + \frac{-1}{1 \times 1 \times -1} + \frac{xy}{-2 \times -1 \times x} \right|$$

$$\text{ج) } S = \frac{1}{3} \times 94 = \boxed{31} \quad \frac{-(-x) - (-x) - (-2)}{+x + x + x} = 94$$

$$\text{د) } \text{نقطة } x = \frac{x_0 + 1}{x_0 - 2} \Rightarrow y = \frac{x_0 + 1}{x_0 - 2}$$

$$\text{هـ) } \text{نقطة } y = \frac{-x_0 + 1}{-x_0 - 2}$$

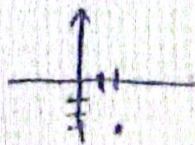
$$\text{و) } \text{نقطة } x = \frac{x_0 + 1}{x_0 - 2} \Rightarrow y = -\frac{-x_0 - 1}{x_0 - 2} = \frac{x_0 + 1}{x_0 - 2}$$

$$\Rightarrow x y_0 - x_0 y = x_0 + 1 \Rightarrow x y_0 - x y = x_0 + 1 \Rightarrow y = \frac{x_0 + 1}{x_0 - 2}$$

$$\text{ز) } \text{نقطة } -x = \frac{-x_0 + 1}{-x_0 - 2} \Rightarrow y = -\frac{x_0 - 1}{x_0 + 2} = \frac{-x_0 + 1}{x_0 + 2}$$

$$\Rightarrow x y_0 + x_0 y = -x_0 + 1 \Rightarrow y = \frac{-x_0 + 1}{x_0 + 2}$$

$$① \quad y = \frac{2x+1}{x-2}$$



انت) $\frac{2}{-2}$

$$x' = x - 2$$

$$y' = y - (-2) = y + 2$$

(x_0, y_0)

$$\Rightarrow \boxed{x = x' + 2} \quad \boxed{y = y' - 2}$$

→ ~~y' = 2~~ ~~0 0 0 0 0~~

$$y' - 2 = \frac{2(x' + 2) + 1}{x' + 2 - 2} = \frac{2x' + 4 + 1}{x' - 1} = \frac{2x' + 5}{x' - 1}$$

$$\Rightarrow y' = \frac{2x' + 5}{x' - 1} + 2 \rightarrow \frac{2x' + 5}{x' - 1} + \frac{2x' + 2}{x' - 1} = \frac{4x' + 7}{x' - 1}$$

$$\boxed{y = \frac{4x + 7}{x - 1}}$$

ب) $\frac{2}{-2}$

$$x' = x - 2 \Rightarrow x = x' + 2$$

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

$$y' + 2 = \frac{2(x' + 2) + 1}{x' + 2 - 2} = \frac{2x' + 4 + 1}{x'} = \frac{2x' + 5}{x'}$$

$$\Rightarrow y' = \frac{2x' + 5}{x'} - 2 = \frac{2x' + 5 - 2x'}{x'} = \frac{5}{x'}$$

$$\boxed{y = \frac{5}{x}}$$

①

انت
مركز

$$\begin{cases} 2x + 4y = 2 \\ (x - 2y = 1) \times 2 = 2x - 4y = 2 \end{cases}$$

$$\Rightarrow 19y = -1 \Rightarrow \boxed{y = -\frac{1}{19}}$$

$$x - 2y = 1 \rightarrow x - 2 \times -\frac{1}{19} = 1 \Rightarrow x + \frac{2}{19} = 1$$

$$\begin{cases} 2x + 4y = 2 \\ x - 2y = 1 \end{cases}$$

$$x = -\frac{2 - (-2 \times 2)}{2 \times 2 - 2 \times 1} = \frac{+12}{2} = 6$$

$$\boxed{x = \frac{12}{19}}$$

$$y = \frac{2 \times 1 - 2 \times 1}{2 \times 2 - 2 \times 1} = \frac{-1}{1} = -1$$

$$\vec{y} = \begin{bmatrix} 12 \\ -1 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 4 \\ 1 & -2 \end{bmatrix} = 2 \times 1 - 4 \times 1 = -2$$

$$\vec{y} = \begin{bmatrix} 2 & 2 \\ -2 & 1 \end{bmatrix} = 2 \times 1 - (-2) \times 1 = 4$$