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سوال ١

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انذ)  $\begin{vmatrix} 4 & 1 \\ 2 & -2 \end{vmatrix} = 0 \Rightarrow$   $\downarrow$

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$y = -2x + 14$

ب)  $2y + 3x + 1 = 0 \Rightarrow$   $\downarrow$

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

ج)  $x + 3y - 1 = 0 \Rightarrow$   $\downarrow$

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

د)  $\frac{x}{2} = y \Rightarrow$   $\downarrow$   $2y = x$

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

انذ)  $A \begin{vmatrix} 2 \\ 1 \end{vmatrix}, B \begin{vmatrix} -1 \\ 1 \end{vmatrix} \Rightarrow d = \sqrt{a^2 + b^2}$

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$\rightarrow \sqrt{9+16} = 5$

$\rightarrow 3x + 4y - 20 = d = \frac{|ax+by+c|}{\sqrt{a^2+b^2}}$

$\Rightarrow \frac{|6+16-20|}{5} = 2$

عنه

منه

$$x^2 + y^2 - 1 = 0$$

$$x^2 + y^2 - 1 = 0$$

المنحني

$$= \frac{1}{\sqrt{2}}$$

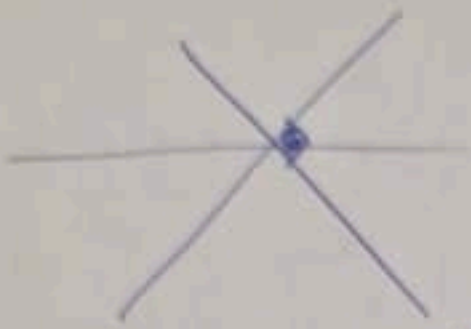
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$$\sqrt{x^2 + y^2 - 1}$$

منه الى هنا

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

$$= \frac{1}{\sqrt{a^2 + b^2}}$$



مسئله ۵

مسئله ۵

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$$x - y = 1$$

$$x + y = 0$$

$$\frac{|a_1x + b_1y + c_1|}{\sqrt{a_1^2 + b_1^2}} = \frac{|a_2x + b_2y + c_2|}{\sqrt{a_2^2 + b_2^2}}$$

$$\frac{|x - y - 1|}{\sqrt{1^2 + (-1)^2}} = \frac{|x + y|}{\sqrt{1^2 + 1^2}}$$

$$(1) \quad |x - y - 1| = |x + y|$$

$$(2) \quad |x - y - 1| = -x - y + 1 \Rightarrow x - y - 1 = -x - y + 1 \Rightarrow 2x - 2 = 0 \Rightarrow x = 1$$

$$x + y = 0 \Rightarrow y = -x$$

$$x - y = 1 \Rightarrow x - (-x) = 1 \Rightarrow 2x = 1 \Rightarrow x = \frac{1}{2}$$

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

$$\left| \frac{0 - 0}{1 + 0 \cdot 0} \right| = 1 \Rightarrow \alpha = 90^\circ$$

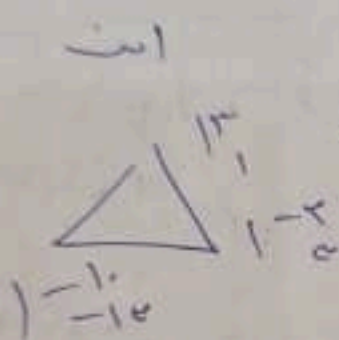
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(4)  $\frac{1}{m} = \frac{1}{-2} \Rightarrow m = -2$

این  $d = \sqrt{5x^2 + 13y^2} = 1$

(5)

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



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

$\frac{1}{2} \begin{vmatrix} 3 & 1 & 1 \\ -2 & 0 & 1 \\ -1 & 1 & 1 \end{vmatrix} = 0$

(6)

(7)

قرینه نسبت به محور  $x$  ها:  $y = \frac{2x+1}{2x-2}$

عکس قرینه می شود  $y = \frac{2x+1}{2x-2}$

قرینه نسبت به محور  $y$  ها:  $y = \frac{-2x+1}{-2x-2}$

قرینه نسبت به مبدأ:  $y = \frac{2x-1}{-2-2x}$

د) (در صورت نیاز)

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

$$|0 = 12-4$$

حالتی

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$$\begin{cases} x' = x - 2 \Rightarrow x' = x - 2 \Rightarrow x' + 2 = x \\ y' = y - 2 \Rightarrow y' = y + 2 \Rightarrow y' - 2 = y \end{cases}$$

$$\text{انند } y' - 2 = \frac{2x' + 0}{x' - 1} = y' = \frac{2x' + 0 + 2x' - 2}{x' - 1}$$

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

$$b) |0 = 12-4$$

$$\begin{aligned} y' + 2 &= \frac{2x' + 2}{x' - 1} \\ \Rightarrow y' &= \frac{2x' + 2 - 2x' + 2}{x' - 1} \\ &= \frac{4}{x' - 1} \end{aligned}$$

$$\begin{cases} x' = x - 2 \Rightarrow x' + 2 = x \\ y' = y - 2 \Rightarrow y' + 2 = y \end{cases}$$

$$\Rightarrow y' = \frac{4}{x' - 1}$$

$$\begin{cases} 3x + 5y = 2 \\ x - 5y = 1 \end{cases}$$

$$\text{از روشی صفتی (انند) } \begin{cases} 3x + 5y - 2 = 0 \\ -4(x - 5y - 1) = 0 \Rightarrow -4x + 20y + 4 = 0 \end{cases}$$

$$\Rightarrow 19y = -1 \Rightarrow y = -\frac{1}{19} \quad x = \frac{14}{19}$$

$$\text{از روشی صفتی (ب) } \Rightarrow x = -\frac{5+10}{-10-3} = \frac{14}{19}$$

$$y = \frac{3-2}{-3-10} = -\frac{1}{19}$$