نام و نام خانوادگی ....دنیا سادات .... پاسخنامه تشریحی تکلیف شماره ... کلاس دهم ....

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الف) $m = \frac{\Delta y}{\Delta x} = \frac{-2-2}{5-4} = -4$ $y - y_1 = m(x - x_1) \rightarrow y - 2 = -4(x-4) \rightarrow y = -4x + 18$

ب) $m = m' \rightarrow m' = -3$

$2y + 6x = -1 \rightarrow y = -3x - \frac{1}{2} \rightarrow m = -3$ $y - y_1 = m'(x - x_1) \rightarrow y - 2 = -3(x-4) \rightarrow y = -3x + 14$

ج) $x + 3y = 1 \rightarrow y = -\frac{1}{3}x + \frac{1}{3} \rightarrow m = -\frac{1}{3}$

$m' = \frac{-1}{m} \rightarrow m' = 3 \rightarrow y - 2 = 3(x-4) \rightarrow y = 3x - 10$

د) $m = \tan \underset{60^\circ}{\frac{\pi}{3}} = \sqrt{3} \rightarrow y - 2 = \sqrt{3}(x-4)$

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

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الف) $\sqrt{\Delta x^2 + \Delta y^2} = \sqrt{(-3)^2 + (7-3)^2} = \sqrt{9+16} = 5$

$-1-2$

ب) $3x + 4y - 3 = 0$

$\left(\frac{2}{3}\right)$

$d = \frac{|ax_0 + by_0 + c|}{\sqrt{a^2+b^2}} = \frac{|6+12-3|}{\sqrt{9+16}} = \frac{15}{5} = 3$

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$2x + 3y = 6 \xrightarrow{\times 2} 4x + 6y = 12$

$4x + 6y = 8$

الف) $ax + by = \frac{c + c'}{2} \rightarrow 4x + 6y = \frac{12+8}{2} = 10 \rightarrow 2x + 3y = 5 \rightarrow y = -\frac{2}{3}x + \frac{5}{6}$

ب) $d = \frac{|c - c'|}{\sqrt{a^2+b^2}} = \frac{|12-8|}{\sqrt{16+36}} = \frac{4}{\sqrt{52}} = \frac{2}{\sqrt{13}} = \frac{2\sqrt{13}}{13}$

$2\sqrt{13}$

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

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

$-\frac{2}{3} = \frac{-1}{\frac{3}{2}} \rightarrow m' = \frac{-1}{m} \rightarrow$ عمود بر هم / متقاطع

$\frac{|ax + by - c|}{\sqrt{a^2+b^2}} = \frac{|a'x + b'y - c'|}{\sqrt{(a')^2 + (b')^2}}$

$\frac{|2x + 3y - 3|}{\sqrt{\cancel{4+9}}} = \frac{|3x - 2y - 1|}{\sqrt{\cancel{4+9}}}$

$\rightarrow 2x + 3y - 3 = 3x - 2y - 1 \rightarrow x - 5y + 2 = 0 \rightarrow x - 5y = -2$, $y = \frac{1}{5}x + \frac{2}{5}$

$\rightarrow 2x + 3y - 3 = -3x + 2y + 1 \rightarrow 5x + y - 4 = 0 \rightarrow 5x + y = 4$, $y = -5x + 4$

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$y + 3x = 3 \rightarrow m = -3$

$y - 2x = 5 \rightarrow m' = 2$

$\tan \alpha = \left|\frac{m - m'}{1 + mm'}\right| = \left|\frac{2-(-3)}{1-6}\right| = \left|\frac{5}{-5}\right| = 1$

$\rightarrow$ ۴۵ درجه

$\rightarrow \beta = 180 - 45 = 135^\circ$

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$A\begin{vmatrix}3\\-2\end{vmatrix}$ $\quad B\begin{vmatrix}-5\\4\end{vmatrix}$

الف) $d=\sqrt{\Delta x^2+\Delta y^2}=\sqrt{8^2+(-6)^2}=\sqrt{64+36}=\sqrt{100}=10$ ۲ ۶

ب) $\begin{vmatrix}3\\-2\end{vmatrix}$ —— M —— $\begin{vmatrix}-5\\4\end{vmatrix}$

$M\left(\frac{x_1+x_2}{2},\frac{y_1+y_2}{2}\right)\Rightarrow M\left(\frac{3-5}{2},\frac{-2+4}{2}\right)\to M(-1,1)$

$\begin{vmatrix}3\\1\end{vmatrix}$ $\quad\begin{vmatrix}-2\\3\end{vmatrix}$ $\quad\begin{vmatrix}-10\\-13\end{vmatrix}$

الف) $\frac{x_1+x_2+x_3}{3}=\frac{3-2-10}{3}=-3$, $\quad\frac{y_1+y_2+y_3}{3}=\frac{1+3-13}{3}=3$ $\to$ مرکز ثقل $(-3,3)$ ۲ ۷

ب) $\begin{vmatrix}3&1&1\\-2&3&1\\-10&-13&1\end{vmatrix}=(3)(3)(1)+(1)(1)(-10)+(-2)(-13)(1)-(1)(3)(-10)-(-2)(1)(1)-(3)(-13)(1)$

$=96 \qquad S=\frac{1}{2}\times 96=48$

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

الف) y قرینه $\quad -y=\frac{2x+1}{4x-3}\to y=\frac{-2x-1}{4x-3}$ ۲ ۸

ب) x قرینه $\quad y=\frac{-2x+1}{-4x-3}$

ج) جای x و y عوض $\quad x=\frac{2y+1}{4y-3}\to 4xy-3x=2y+1\to y=\frac{1+3x}{4x-2}$

د) جای x و y عوض و قرینه $\quad -x=\frac{-2y+1}{-4y-3}\to +4xy+3x=-2y+1\to y=\frac{1-3x}{2+4x}$

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

الف) $x'=x-\alpha \quad y'=y-\beta \quad \begin{vmatrix}2\\-3\end{vmatrix}\to\begin{vmatrix}\alpha\\\beta\end{vmatrix}$ $\to x'=x-2\to x=x'+2$, $\quad y'=y+3\to y=y'-3$

$y'-3=\frac{2x'+4+1}{x'+2-3}\Rightarrow y'=\frac{2x'+5+3x'-3}{x'-1}=\frac{5x'+2}{x'-1}$

ب) $x'=x-3\to x=x'+3$ ۲ ۹

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

$y'+2=\frac{2x'+6+1}{x'+3-3}\Rightarrow y'=\frac{2x'+7-2x'}{x'}=\frac{7}{x'}$

$\begin{cases}3x+4y=2\\x-5y=1\end{cases}$

الف) $\begin{matrix}3x+4y=2\\x-5y=1\end{matrix}\xrightarrow{\times(-3)}\begin{cases}3x+4y=2\\-3x+15y=-3\end{cases}$ $\quad 19y=-1\to y=\frac{-1}{19}$ $\xrightarrow{y=\frac{-1}{19}} 3x-\frac{4}{19}=2\to x=\frac{14}{19}$ ۲ ۱۰

ب) $x=\frac{-\begin{vmatrix}4&2\\-5&1\end{vmatrix}}{\begin{vmatrix}3&4\\1&-5\end{vmatrix}}=-\frac{(4)-(-10)}{(-15)-(4)}=-\frac{14}{-19}=\frac{14}{19}$ $\qquad y=\frac{\begin{vmatrix}3&2\\1&1\end{vmatrix}}{\begin{vmatrix}3&4\\1&-5\end{vmatrix}}=\frac{3-2}{-15-4}=\frac{-1}{19}$