نام و نام خانوادگی ....[illegible]........ پاسخنامه تشریحی تکلیف شماره .... کلاس ....

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الف) $m=\frac{\Delta y}{\Delta x}$ $\quad \frac{-2-2}{5-4}=\frac{-4}{1}=-4$

$y-y_0=m(x-x_0) \Rightarrow 2=-4(4)+c \Rightarrow c=18$

$y=-4x+18$

ب) $2y=-6x-1 \Rightarrow y=-3x-\frac{1}{2}$ $\quad m=-3$

$y-y_0=m(x-x_0) \Rightarrow y-2=-3x+3(4)=$

$y=-3x+14$

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

$m'=-\frac{1}{m}=-\frac{1}{-\frac{1}{3}}=3$ $\quad y-y_0=m'(x-x_0)$

$y-2=3(x-4)=y=3x-12+2 \Rightarrow \boxed{y=3x-10}$

د) $m=\tan\alpha \Rightarrow m=\tan\frac{\pi}{3}=\sqrt{3}$

$y-y_0=m(x-x_0) \Rightarrow y-2=\sqrt{3}x-4\sqrt{3}$

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

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الف) $\sqrt{\Delta x^2+\Delta y^2} \Rightarrow \sqrt{(-1-2)^2+(5-1)^2}$

$\sqrt{3^2+4^2}=5$

ب) $\frac{|ax_0+by_0+c|}{\sqrt{a^2+b^2}} \Rightarrow \frac{|4(3)+3(2)-3|}{\sqrt{3^2+4^2}}$

$\frac{|12+6-3|}{\sqrt{25}}=\frac{15}{5}=3$

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الف) $2x+3y=6 \Rightarrow 4x+6y-12=0 \Rightarrow c=-12$ $\quad \frac{|c-c''|}{\sqrt{a^2+b^2}}=\frac{|c'-c''|}{\sqrt{a^2+b^2}}$

$4x+6y-8=0 \Rightarrow c''=-8$

$\frac{|-12-c'|}{\sqrt{4^2+6^2}}=\frac{|c'-(-8)|}{\sqrt{4^2+6^2}} \Rightarrow |-12-c'|=|c'+8|$

$\Rightarrow -12-c'=c'+8 \Rightarrow -20=-2c' \Rightarrow c'=10$

$4x+6y=10 \Rightarrow 4x+6y-10=0$

$\Rightarrow -12-c'=-c'-8 \Rightarrow -12=-8$ ✗

ب) $\frac{|c-c'|}{\sqrt{a^2+b^2}} \Rightarrow \frac{|-8-(-12)|}{\sqrt{4^2+6^2}}=\frac{|4|}{\sqrt{52}}=\frac{4}{\sqrt{52}}=\frac{4}{2\sqrt{13}}=\frac{2}{\sqrt{13}}$

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فاصله از دو خط برابر است $\quad \frac{|3x-2y-1|}{\sqrt{9+4}}=\frac{|2x+3y-3|}{\sqrt{4+9}} \Rightarrow |3x-2y-1|=|2x+3y-3|$

$3x-2y-1=2x+3y-3 \Rightarrow x-5y+2=0$

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

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$y=2x+5 \Rightarrow m=2$ $\quad \tan\alpha=\left|\frac{m-m'}{1+mm'}\right| \Rightarrow \left|\frac{2-(-3)}{1+(2\times -3)}\right|=\left|\frac{5}{-5}\right|$

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

$\tan\alpha=|-1|=|1| \Rightarrow \alpha=45°=\frac{\pi}{4}$

الف) $\sqrt{\Delta x^2+\Delta y^2} = \sqrt{(3--5)^2+(-4-2)^2} = \sqrt{(8)^2+(-6)^2} = 10$ ب) $x_m = \frac{x_1+x_2}{2} \to \frac{3+-5}{2} = -1 \quad y_m = \frac{y_1+y_2}{2} = \frac{-2+4}{2} = 1$ $m\begin{vmatrix}-1\\1\end{vmatrix}$		۶
الف) $x_G = \frac{x_1+x_2+x_3}{3} = \frac{3-2-11}{3} = \frac{-9}{3} = -3$ $y_G = \frac{y_1+y_2+y_3}{3} \Rightarrow \frac{1+3-13}{3} = -3 \quad G\begin{vmatrix}-3\\-3\end{vmatrix}$ ب) $\frac{1}{2}\begin{vmatrix}3 & 1 & 1\\ -2 & 3 & 1\\ -2 & -10 & 1\end{vmatrix} = \frac{1}{2}(9-10+35+30+30+2) = \frac{91}{2}$		۷
الف) $-y = \frac{2x+1}{4x-3} \to y = \frac{-2x-1}{4x-3}$	ب) $y = \frac{-2x+1}{-4x-3} \Rightarrow y = \frac{-(2x-1)}{-(4x+3)}$ $y = \frac{(2x-1)}{(4x+3)}$	۸
ج) $x = \frac{2y+1}{4y-3} \Rightarrow x = \frac{2y-1}{-4y-3} \Rightarrow y = -\frac{-3x+1}{4x-2}$ $y = \frac{3x+1}{4x-2}$	د) $-x = \frac{-2y+1}{-4y-3} \Rightarrow x = \frac{2y-1}{-4y-3}$ $y = -\frac{-3x-1}{-4x-2} \to y = \frac{3x-1}{4x-2}$	
الف) $x' = x-2 \quad y' = \frac{2x'+1}{x'-3} \to y+3 = \frac{2(x-2)+1}{(x-2)+3}$ $y' = y+3$ $y+3 = \frac{2x-3}{x+1} \to y = \frac{2x-3}{x+1} - 3 \Rightarrow y = \frac{2x-3-3x-3}{x+1} \to y = \frac{-x-6}{x+1}$ ب) $x' = x-3 \quad y' = \frac{2x'+1}{x'-3} \to y-2 = \frac{2(x-3)+1}{(x-3)-3} = y-2 = \frac{2x-5}{x-6}$ $y' = y-2$ $y = \frac{2x-5}{x-6} + 2 \to y = \frac{2x-5+2x-12}{x-6} \Rightarrow y = \frac{4x-17}{x-6}$		۹
الف) $\begin{cases}3x+4y=2\\ x-5y=1\end{cases} \to \begin{array}{l}3x+4y=2\\ -3x+15y=-3\\ \hline 19y=-1\end{array} \quad y = -\frac{1}{19}$ $x = 5(-\frac{1}{19}) = 1 \to x+\frac{5}{19} = 1 \to x = 1-\frac{5}{19} = \frac{14}{19}$ ب) $x = -\frac{\begin{vmatrix}b & c\\ b' & c'\end{vmatrix}}{\begin{vmatrix}a & b\\ a' & b'\end{vmatrix}} \quad y = \frac{\begin{vmatrix}b & c\\ b' & c'\end{vmatrix}}{\begin{vmatrix}a & b\\ a' & b'\end{vmatrix}} \quad x = -\frac{\begin{vmatrix}4 & 2\\ -5 & 1\end{vmatrix}}{\begin{vmatrix}3 & 4\\ 1 & -5\end{vmatrix}} = -\frac{4+10}{-15-4} = -\frac{14}{-19} = \frac{14}{19}$		۱۰

$y = \frac{\begin{vmatrix}3 & 2\\ 1 & 1\end{vmatrix}}{\begin{vmatrix}3 & 4\\ 1 & -5\end{vmatrix}} = \frac{3-2}{-15-4} = \frac{1}{-19} = -\frac{1}{19}$