نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره ...... کلاس ......

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الف) $m=\frac{\Delta y}{\Delta x}=\frac{2-(-2)}{4-5}=\frac{4}{-1}=-4$ $\quad y=-4x+b \xrightarrow{(4,2)} 2=-16+b \Rightarrow b=18$

$\boxed{y=-4x+18}$

ب) $2y+6x=b \xrightarrow{(4,2)} 4+24=b=28 \Rightarrow \boxed{2y+6x=28}$

ج) $x+3y=1 \xrightarrow{\perp} -3x+y=b \xrightarrow{(4,2)} -12+2=b=-10$

$\Rightarrow \boxed{-3x+y=-10}$

د) $m=\tan\frac{\pi}{3}=\sqrt{3}$

$y=\sqrt{3}x+b \xrightarrow{(4,2)} 2=4\sqrt{3}+b \Rightarrow b=2-4\sqrt{3}$

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

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الف) $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}=\sqrt{3^2+(-4)^2}=\sqrt{9+16}=5$

ب) $3x+4y-3=0$ $\quad \frac{|3\times 2+4\times 3-3|}{\sqrt{(3)^2+(4)^2}}=\frac{|15|}{|5|}=\frac{15}{5}=3$

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الف) $\left.\begin{array}{l}2x+3y=4\\ 2x+3y=6\end{array}\right\} \xrightarrow[\text{وسط}]{\text{معادله خط}} 2x+3y=\frac{4+6}{2} \Rightarrow \boxed{2x+3y=5}$

ب) $\begin{array}{l}2x+3y=4\\ 2x+3y=6\end{array}$ $\quad \frac{|6-4|}{\sqrt{(2)^2+(3)^2}}=\frac{2}{\sqrt{13}}=\boxed{\frac{2\sqrt{13}}{13}}$

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$\frac{|3x-2y-1|}{\sqrt{3^2+(2)^2}}=\frac{|2x+3y-3|}{\sqrt{(2)^2+(3)^2}} \Rightarrow \frac{|3x-2y-1|}{\sqrt{13}}=\frac{|2x+3y-3|}{\sqrt{13}}$

$\Rightarrow |3x-2y-1|=|2x+3y-3|$

$3x-2y-1=2x+3y-3 \Rightarrow \boxed{5y-x=2}$

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

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$y=2x+5$

$y=-3x+3$ $\quad \tan\alpha=\left|\frac{m-m'}{1+mm'}\right|=\left|\frac{2-(-3)}{1-6}\right|=\left|\frac{5}{-5}\right|=1 \Rightarrow \boxed{\alpha=45^\circ}$

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الف) $AB = \sqrt{(0-8)^2+(0-y)^2} = \sqrt{8^2+y^2} = \sqrt{64+36} = \sqrt{100} = 10$

ب) $M\begin{vmatrix} \frac{x_A+x_B}{2} = \frac{3-5}{2} = -1 \\ \frac{y_A+y_B}{2} = \frac{2-0}{2} = 1 \end{vmatrix} \Rightarrow M\,|\,{}^{-1}_{1}$

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الف) $M\begin{vmatrix} \frac{x_1+x_2+x_3}{3} = \frac{-10-2+3}{3} = -3 \\ \frac{y_1+y_2+y_3}{3} = \frac{1+3+12}{3} = 4 \end{vmatrix} \rightarrow M\,|\,{}^{-3}_{4}$

ب) $\frac{1}{2}\begin{vmatrix} 3 & 1 & 1 \\ -2 & 3 & 1 \\ -10 & -13 & 1 \end{vmatrix} = \frac{1}{2}|9 + (-10) + (39) - (-30) - (-2) - (-13)| = \frac{1}{2}|94| = 47$

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الف) $y \to -y$ ، $-y = \frac{2x+1}{3x-2} \Rightarrow y = \frac{2x+1}{2-3x}$

ب) $x \to -x$ ، $y = \frac{-2x+1}{-3x-2} = \frac{2x-1}{3x+2}$

ج) $x \to y$ ، $y \to x$ ، $x = \frac{2y+1}{3y-2} \Rightarrow y = \frac{2x+1}{3x-2}$

د) $y \to -x$ ، $x \to -y$ ، $-x = \frac{-2y+1}{-3y-2} \Rightarrow x = \frac{-2y+1}{3y+2} \Rightarrow y = \frac{-2x+1}{2x+3}$

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الف) $x' = x-2 \Rightarrow x = x'+2$ ، $y' = y+4 \Rightarrow y = y'-4$

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

$\Rightarrow y' = \frac{2x'+5}{x'-1} + 4 \Rightarrow y' = \frac{6x'+1}{x'-1}$

ب) $x' = x-2 \Rightarrow x = x'+2$ ، $y' = y-2 \Rightarrow y = y'+2$

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

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

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الف) $\begin{cases} 2x+4y=2 \\ x-5y=1 \end{cases} \xrightarrow{\times -2} \begin{cases} 2x+4y=2 \\ -2x+10y=-2 \end{cases} \ominus$

$14y = 4 \Rightarrow y = \frac{4}{14} = \frac{2}{7}$ ، $x = 1+5y = 1+\frac{10}{7} = \frac{17}{7}$

ب) $2x+4y=2$

$x-5y=1$

$y = \frac{2-2}{-10-4} = -\frac{1}{19}$ ، $x = -\frac{-10-4}{-5-4} = -\frac{14}{19} = \frac{14}{19}$