مهدی کاظمی گروه B پسر

۱- الف)

$m = \frac{2+2}{4-5} = -4 \qquad y-2 = -4(x-4)$

$\rightarrow y = -4x + 8$

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

$y - 2 = -3(x-4) \rightarrow y = -3x + 14$

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

$m = 3$

$y - 2 = 3(x-4) \rightarrow y = 3x - 10$

د)

$\tan\frac{\pi}{3} = \sqrt{3} = m \qquad y - 2 = \sqrt{3}(x-4) \rightarrow y = \sqrt{3}x - 4\sqrt{3} + 2$

۲- الف) $\left|\begin{matrix}2\\3\end{matrix}\right. \quad \left|\begin{matrix}-1\\7\end{matrix}\right. \qquad d = \sqrt{(3)^2 + (-4)^2} = 5$

ب) $\frac{|3(2)+4(3)-3|}{\sqrt{9+16}} = \frac{15}{5} = 3$

$3x + 4y - 3 = 0$ و $\left|\begin{matrix}2\\3\end{matrix}\right.$

۳- الف)

$\begin{cases} 4x + 6y = 12 \\ 4x + 6y = 8 \end{cases} \longrightarrow 6x + 4y = \frac{12+8}{2} \rightarrow 6x + 4y = 10$

ب)

$\begin{cases} 4x + 6y = 12 \\ 4x + 6y = 8 \end{cases} \longrightarrow d = \frac{|12-8|}{\sqrt{16+36}} = \frac{4}{\sqrt{52}} = \frac{4\sqrt{52}}{52}$

۴-

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

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

$3x - 2y - 1 = -2x - 3y + 3$

$5x + y = 4$

$3x - 2y - 1 = 2x + 3y - 3$

$x - 5y = -2$

٥- $y=-٣x+٣$ ، $y=٢x+a$

$m=-٣$ ، $m'=٢$ $\quad \tan\alpha = \left|\frac{-٣-٢}{١-٦}\right| = ١$ $\quad \alpha = \frac{\pi}{٤}$

٦- الف) $|AB| = \sqrt{(-٥-٣)^٢+(٤+٢)^٢} = ١٠$

ب) $M = \left(\frac{-٥+٣}{٢}, \frac{٤-٢}{٢}\right) \longrightarrow M(-١,١)$

٧- الف) $xG = \frac{-١٥-٢+٣}{٣} = -٣$

$yG = \frac{-١٣+٣+١}{٣} = ٣$ $\quad G\left|\begin{matrix}-٣\\ ٣\end{matrix}\right.$

ب) $\begin{vmatrix} -١٥ & -١٣ & ١ \\ -٢ & ٣ & ١ \\ ٣ & ١ & ١ \end{vmatrix} = \frac{١}{٢}\left|-٣٥+٢٦-٣٩-٩+١٥-٢٦\right| = ٣٤$

٨- الف) $-٧ = \frac{٢x+١}{٤x-٣}$ $\quad y = \frac{١-٢x}{٢x-٣}$

ب) $y = \frac{-٢x+١}{-٤x-٣}$

ج) $x = \frac{٢y+١}{٤y-٣}$

$٤xy-٣x = ٢y+١$

$٤xy-٢y = ٣x+١ \longrightarrow ٢y = \frac{٣x+١}{٢x-١}$

$y = \frac{٣x+١}{٤x-٢}$

د) $-x = \frac{-٢y+١}{-٤y-٣}$

$٤xy+٣x = -٢y+١$

$٤xy+٢y = -٣x+١$

$٢y(٢x+١) = -٣x+١$

$٢y = \frac{-٣x+١}{٢x+١} \longrightarrow y = \frac{-٣x+١}{٤x+٢}$

٩-

۱۰ - الف)

$$\begin{cases} 3x+4y=2 \\ x-5y=1 \xrightarrow{\times -3} -3x+15y=-3 \end{cases}$$

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

ب)

$$\begin{cases} 3x+4y=2 \\ x-5y=1 \end{cases} \quad x=-\frac{14}{-19}, y=+\frac{1}{-19}$$

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