

نام و نام خانوادگی علی جمالی پاسخنامه تشریحی تکلیف شماره ۱۰۰... کلاس ۱۳۹۵/۱۳۹۶	
الف) $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-2)}{4 - 0} = -4$ $y - 2 = -4(x - 4)$ $y - y_0 = m(x - x_0)$ $\Rightarrow y = -4x + 18$ ✓ ب) $m = -\frac{4}{1} = -4$ $(y - 2) = -4(x - 4) \Rightarrow y = -4x + 18$ ✓ ج) $m = -\frac{1}{4} \Rightarrow m' = \frac{-1}{-\frac{1}{4}} = 4$ $(y - 2) = 4(x - 4) \Rightarrow y = 4x - 10$ ✓ د) $m \tan \frac{\pi}{4} = \sqrt{3}$ $\Rightarrow (y - 2) = \sqrt{3}(x - 4) \Rightarrow y = \sqrt{3}x + 2 - 4\sqrt{3}$ ✓	(۲) ۱
الف) $\sqrt{(2 - (-1))^2 + (3 - 1)^2} = \sqrt{3^2 + 2^2} = 5$ ✓ ب) $\frac{ ax_0 + by_0 + c }{\sqrt{a^2 + b^2}} = \frac{ 3 \times 2 + 4 \times 3 - 10 }{\sqrt{3^2 + 4^2}} = \frac{10}{5} = 2$ ✓ $3x + 4y - 10 = 0$	(۲) ۲
$2x + 3y = 4$ $2x + 3y = 6$ الف) $2x + 3y = \frac{4+6}{1} = 5$ ✓ ب) $\frac{ c_1 - c_2 }{\sqrt{a^2 + b^2}} = \frac{ 4 - 6 }{\sqrt{4 + 9}} = \frac{2}{\sqrt{13}}$ ✓	(۲) ۳
$2x + 3y - 3 = 0$ $3x - 2y - 1 = 0$ $\frac{ 2x + 3y - 3 }{\sqrt{4 + 9}} = \frac{ 3x - 2y - 1 }{\sqrt{9 + 4}} \Rightarrow$ (I) $2x + 3y - 3 = 3x - 2y - 1$ $\Rightarrow 5y = x + 2 \Rightarrow y = \frac{x}{5} + \frac{2}{5}$ ✓ (II) $2x + 3y - 3 = 1 + 2y - 3x$ $\Rightarrow y = -5x + 4$ ✓	(۲) ۴
$\tan \alpha = \left \frac{m - m'}{1 + mm'} \right = \left \frac{2 - (-3)}{1 + 2(-3)} \right = \left \frac{5}{-5} \right = 1 \Rightarrow \alpha = 45^\circ$ ✓ $m = -\frac{2}{1} = -2$ $m' = -\frac{3}{1} = -3$	(۲) ۵

$$\text{الف) } \sqrt{(3-(-5))^2 + (-2-4)^2} = \sqrt{8^2 + 4^2} = \boxed{10} \checkmark$$

$$\text{ب) } M \begin{vmatrix} \frac{3+(-5)}{4} \\ -\frac{2+4}{4} \end{vmatrix} = \begin{vmatrix} M & -1 \\ & 1 \end{vmatrix} \checkmark$$

$$\text{الف) } G \begin{vmatrix} \frac{3+(-2)}{3} \\ \frac{1+3+(-13)}{3} \end{vmatrix} \Rightarrow \begin{vmatrix} G & -3 \\ & -3 \end{vmatrix} \checkmark$$

$$\text{ب) } \frac{1}{4} \begin{vmatrix} 3 & 1 & 1 \\ -2 & 3 & 1 \\ -10 & -13 & 1 \end{vmatrix} = \frac{1}{4} |9 + 24 - 10 + 30 + 39 + 2| = \frac{1}{4} |94| = \boxed{23.5} \checkmark$$

$$\text{الف) } -\frac{2x+1}{5x-3} \checkmark \quad (x, y) \rightarrow (x, -y)$$

$$\text{ب) } \frac{2(-x)+1}{5(-x)-3} = \frac{-2x+1}{-5x-3} \checkmark \quad (x, y) \rightarrow (-x, y)$$

$$\text{ج) } y = \frac{2x+1}{5x-3} \Rightarrow x = \frac{3y+1}{5y-2} \checkmark \quad (x, y) \rightarrow (y, x)$$

$$\text{د) } -x = \frac{2(-y)+1}{5(-y)-3} \Rightarrow x = -\frac{-2y+1}{-5y-3} = \frac{-2y+1}{5y+3} \Rightarrow y = -\frac{3x-1}{5x+3} \checkmark \quad (x, y) \rightarrow (-y, -x)$$

$$\text{الف) } \begin{aligned} x' &= x-2 \Rightarrow x = x'+2 \\ y' &= y-(-3) \Rightarrow y = y'-3 \end{aligned} \quad y'-3 = \frac{2(x'+2)+1}{x'+2-3} = \frac{2x'+5}{x'-1} \Rightarrow y' = \frac{2x'+5+x'-1}{x'-1} = \frac{3x'+4}{x'-1} \checkmark$$

$$\text{ب) } \begin{aligned} x' &= x-3 \Rightarrow x = x'+3 \\ y' &= y-2 \Rightarrow y = y'+2 \end{aligned} \quad y'+2 = \frac{2(x'+3)+1}{x'+3-3} = \frac{2x'+7}{x'} \Rightarrow y' = \frac{2x'+7}{x'} - 2 = \frac{2x'+7-2x'}{x'} = \frac{7}{x'} \checkmark$$

$$\begin{aligned} 3x+4y &= 2 \\ 3x-10y &= 3 \end{aligned} \Rightarrow \begin{aligned} 3x-10y-3x-4y &= 2-3 \\ -14y &= -1 \Rightarrow y = \frac{-1}{-14} = \frac{1}{14} \checkmark \\ 3x &= 2 + \frac{10}{14} = \frac{16}{14} \Rightarrow x = \frac{8}{7} \checkmark \end{aligned}$$

$$y = \frac{2-2}{-10-4} = \boxed{-\frac{1}{14}} \checkmark$$

$$x = -\frac{4+10}{-10-4} = \boxed{\frac{14}{14}} \checkmark$$