

نام و نام خانوادگی قریب الزیاده پاسخنامه تشریحی تکلیف شماره ۱۵ کلاس از دستم (مختار B)

الف) $m = \frac{y_2 - y_1}{x_2 - x_1} \rightarrow m = \frac{-2 - 2}{2 - 4} = -4 \quad y - y_1 = m(x - x_1) \xrightarrow{|2|} y - 2 = -4(x - 4)$
 $y = -4x + 18$
 ب) $2y + 4x = -1 \rightarrow y = -3x - \frac{1}{2} \quad m' = -3 \xrightarrow{|2|} y - 2 = -3(x - 4) \quad y = -3x + 14$
 ج) $x + 3y = 1 \rightarrow y = -\frac{1}{3}x + \frac{1}{3} \quad m' = -\frac{1}{m} = 3 \xrightarrow{|2|} y - 2 = 3(x - 4) \quad y = 3x - 10$
 د) $\tan \frac{\pi}{6} = \sqrt{3} \quad m' = \sqrt{3} \xrightarrow{|2|} y - 2 = \sqrt{3}(x - 4) \quad y = \sqrt{3}x - 4\sqrt{3} + 2$ (۲)

الف) فاصله دو نقطه $\rightarrow \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2} = \sqrt{(2 - 4)^2 + (1 - 2)^2} = \sqrt{2} = \sqrt{2\omega} = \omega$
 ب) فاصله نقطه از خط $\rightarrow d = \frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}} \rightarrow d = \frac{|3(2) + 4(3) - 3|}{\sqrt{3^2 + 4^2}} = \frac{1\omega}{\sqrt{2\omega}} = \frac{1\omega}{\omega} = \omega$ (۲)

الف) $ax + by = \frac{c + c'}{2} \quad 4x + 3y = \frac{11 + 12}{2} \quad 4x + 3y = 11.5 \quad |y = -\frac{4}{3}x + \frac{19}{6}|$
 ب) $d = \frac{|c - c'|}{\sqrt{a^2 + b^2}} \Rightarrow d = \frac{|12 - 11|}{\sqrt{4^2 + 3^2}} = \frac{1}{5}$ (۲)

مستقیم در خط $3x - 2y = 1 \quad 2x + 3y = 3$
 $\frac{|ax + by - c|}{\sqrt{a^2 + b^2}} = \frac{|a'x + b'y - c'|}{\sqrt{a'^2 + b'^2}} \rightarrow \frac{|2x + 3y - 3|}{\sqrt{2^2 + 3^2}} = \frac{|3x - 2y - 1|}{\sqrt{3^2 + 2^2}}$
 $\rightarrow 2x + 3y - 3 = 3x - 2y - 1 \quad \omega y = x + 2 \quad |y = \frac{1}{\omega}x + \frac{2}{\omega}|$
 $\rightarrow 2x + 3y - 3 = -3x + 2y + 1 \quad |y = -\omega x + 4|$

زاویه بین دو خط $y + 3x = 3 \quad y - 2x = \omega$
 $\tan \alpha = \frac{|m - m'|}{1 + mm'} \rightarrow m = 2, m' = -3 \quad \frac{|2 - (-3)|}{1 + 2(-3)} = \left| \frac{\omega}{-\omega} \right| = 1$
 $\tan \alpha = 1 \quad \alpha = \frac{\pi}{4} = 45^\circ$ (۲)

الف) $A \begin{vmatrix} 3 \\ -2 \end{vmatrix} B \begin{vmatrix} -5 \\ 1 \end{vmatrix} AB = \sqrt{(1+2)^2 + (-5-3)^2} = \sqrt{100} = 10$

ب) $M = \left(\frac{x_A + x_B}{2}, \frac{y_A + y_B}{2} \right) M \left(\frac{3-5}{2}, \frac{-2+1}{2} \right) M(-1, -0.5)$

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الف) $\begin{vmatrix} 3 & -2 & -10 \\ 1 & 3 & -13 \end{vmatrix}$ مركز ثقل $\rightarrow x = \frac{3+(-2)+(-10)}{3} = -3$ $M(-3, 3)$
 $y = \frac{1+3-13}{3} = 3$

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ب) $S = \frac{1}{2} \begin{vmatrix} 3 & 1 & 1 \\ -2 & 3 & 1 \\ -10 & -13 & 1 \end{vmatrix} \rightarrow \frac{1}{2} (9 - 10 + 22 + 30 + 2 + 139) = 141$

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

الف) $x \sim \text{نسبة} \rightarrow -y = \frac{2x+1}{4x-3} \rightarrow y = \frac{-2x-1}{-4x+3}$

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ج) ③, ① $\rightarrow x = \frac{2y+1}{4y-3} y(4x-3) = 2x+1 y = \frac{2x+1}{4x-3}$

د) ⑤, ② $\rightarrow y = -\frac{2x+1}{4x+2} = \frac{-2x-1}{4x+2}$

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

الف) $\begin{vmatrix} 2 & -3 \end{vmatrix} \begin{cases} x' = x-2 & x = x'+2 \\ y' = y+3 & y = y'+3 \end{cases} y'-3 = \frac{2x'+2+1}{x'+2-3} y' = \frac{2x'+5}{x'-1} + 3$

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

ب) $\begin{vmatrix} 2 & -3 \end{vmatrix} \begin{cases} x' = x+3 & x = x'-3 \\ y' = y+2 & y = y'+2 \end{cases} y'-2 = \frac{2x'-6+1}{x'-3-3} y' = \frac{2x'-5}{x'-6} + 2 y' = \frac{2x'-13}{x'-6}$

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

الف) $\begin{cases} 3x+4y=2 \\ x-5y=1 \end{cases}$ ضربي $\rightarrow \begin{cases} 3x+4y=2 \\ 3x-15y=3 \end{cases} \rightarrow 19y=-1 y = -\frac{1}{19} x = \frac{19}{19}$

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

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