

$m = \frac{\Delta y}{\Delta x} = \frac{f}{-1} = -f \quad y - 2 = \overbrace{-f(x-f)}^{-fx+1f} = -fy = -fx+1f$	(الف)	۱
$m = \frac{-9}{f} = -\frac{9}{f} \quad y - 2 = \overbrace{-\frac{9}{f}(x-f)}^{-\frac{9x}{f}+1f} = -\frac{9}{f}y = -\frac{9x}{f}+1f$	(ب)	
$m = -\frac{1}{f} \stackrel{DE}{=} m' = +f \quad y - 2 = \overbrace{-\frac{1}{f}(x-f)}^{\frac{fx}{f}-1f} = -\frac{1}{f}y = x-1f$	(ج)	
$\tan \frac{\pi}{3} = \tan 60^\circ = \sqrt{3} = m \quad y - 2 = \overbrace{\sqrt{3}(x-f)}^{\sqrt{3}x-f\sqrt{3}} = \sqrt{3}y = \sqrt{3}x - f\sqrt{3} + 2$	(د)	
$\sqrt{(4x)^2 + 9y^2} = \sqrt{16 + 9} = \sqrt{25} = 5$	(الف)	
$d = \frac{ 14 + 12 - 21 }{\sqrt{9 + 14}} = \frac{15}{\sqrt{23}} = \frac{15}{\sqrt{23}}$	(ب)	۲
$\begin{cases} fx + 4y = 1 \\ 2x + 3y = 9 \end{cases} \Rightarrow \begin{cases} fx + 4y = 1 \\ fx + 4y = 12 \end{cases} \quad \begin{aligned} ax + by &= \frac{C' + C}{f} \Rightarrow fx + 4y = 10 \\ &\Rightarrow fx + 4y - 10 = 0 \end{aligned}$	(الف)	۳
$\begin{aligned} fx + 4y - 1 &= 0 \\ 2x + 3y - 9 &= 0 \Rightarrow fx + 4y - 12 = 0 \end{aligned} \quad d = \frac{ C - C' }{\sqrt{a^2 + b^2}} = \frac{ -12 - 1 }{\sqrt{14 + 14}} = \frac{13}{\sqrt{28}} = \frac{13}{2\sqrt{7}}$	(ب)	
$\frac{ 3x - 2y - 1 }{\sqrt{9 + 4}} = \frac{ 2x + 3y - 3 }{\sqrt{4 + 9}} \Rightarrow 3x - 2y - 1 = 2x + 3y - 3 $		۴
$\begin{cases} 3x - 2y - 1 = 2x + 3y - 3 \Rightarrow x - 5y = -2 \Rightarrow m = \frac{1}{5} \\ 3x - 2y - 1 = -2x - 3y + 3 \Rightarrow 5x + y = 4 \Rightarrow m = -5 \end{cases}$ مسئله (ف) به هم می‌زنند		
$\tan \alpha = \left \frac{m - m'}{1 + mm'} \right = \left \frac{\frac{1}{5} - (-5)}{1 + \frac{1}{5}(-5)} \right = +1 \Rightarrow \tan 45^\circ$ $\alpha = 45^\circ \quad \text{یا} \quad \frac{\pi}{4}$		۵
$\begin{aligned} y + 3x &= 3 \Rightarrow m = -\frac{1}{3} \\ y - 2x &= 5 \Rightarrow m = \frac{1}{2} \end{aligned}$		

$\sqrt{34+4x} = 10 \quad \text{(الف)}$ $M \left \begin{array}{c} \frac{x_A + x_B}{2} \\ \frac{y_A + y_B}{2} \end{array} \right. = 2M \left \begin{array}{c} -1 \\ +1 \end{array} \right. \quad \text{(ب)}$	
$G \left \begin{array}{c} x = \frac{-10 - 2 + 3}{3} \\ y = \frac{-13 + 3 + 1}{3} \end{array} \right. = 2 \left \begin{array}{c} -3 \\ -3 \end{array} \right. \quad \text{(الف)}$ $S = \frac{1}{P} \begin{vmatrix} -10 & -2 & 3 \\ -13 & 3 & 1 \\ 1 & 1 & 1 \end{vmatrix} = \frac{1}{P} (-30 - 29 - 2 - 9 - (-10) - 24) = \frac{1}{P} \times 98 = 49 \quad \text{(ب)}$	
نسبت $y = \frac{2x+1}{x-3}$ $\rightarrow$ $-y = \frac{2x+1}{x-3}$ (الف) نسبت $x = \frac{2y+1}{y-3}$ (ب) نسبت $x = \frac{2y+1}{y-3} \rightarrow 2xy + 2y = 3x + 1 \rightarrow 2xy + 2y = 3x + 1 \rightarrow 2y(x+1) = 3x + 1 \rightarrow y = \frac{3x+1}{2x+2}$ نسبت $x = \frac{2y+1}{y-3} \rightarrow 2xy + 2y = 3x + 1 \rightarrow 2y(x+1) = 3x + 1 \rightarrow y = \frac{3x+1}{2x+2}$ نسبت $x = \frac{2y+1}{y-3} \rightarrow 2xy + 2y = 3x + 1 \rightarrow 2y(x+1) = 3x + 1 \rightarrow y = \frac{3x+1}{2x+2}$	
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