

$A(x, -4)$
 $B(x, 1)$
 in der Geraden $\rightarrow A, B$ liegen auf der Geraden $\rightarrow$

$$m = \frac{\Delta y}{\Delta x} = \frac{1 - (-4)}{x - x} = \frac{1}{-x} = -\frac{1}{x}$$

in die Geraden $\rightarrow y = -\frac{1}{x}x + b$

Einsetzen von $A(x, -4)$ $\rightarrow -4 = -\frac{1}{x}x + b$

$\rightarrow b = 0$

* معادله خط عمود متصف AB باید شیب آن عکس و قعرب AB باشد.

معادله خط AB $y = -\frac{1}{2}x + 2$

نقطه تلاقی وسط A, B باشد $\left(\frac{\frac{4}{2} + \frac{1-4}{2}}{2}, \frac{\frac{1-4}{2}}{1} \right)$

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

$b = \frac{5}{2}$ $1 = \frac{1}{2}(2) + b$

$$A(3,1) \rightarrow BC: \sqrt{\underbrace{(-1)^2}_{f^2} + \underbrace{(2)^2}_{y^2}} \rightarrow \sqrt{f^2 + y^2} = \sqrt{1+4} = \sqrt{5} = \boxed{5}$$

$C(-1, 3)$ $\rightarrow$ AH از A تا BC فاصله $\rightarrow AH = \frac{|am+by+c|}{\sqrt{a^2+b^2}}$
 طول BC چقدر از ارتفاع AH بیشتر است؟ $\rightarrow$ BC خط: $\begin{cases} m = \frac{\Delta y}{\Delta x} = \frac{y-3}{-1-(-1)} = \frac{1}{-1} = -1 \\ \text{خط: } y = -\frac{1}{1}x + b \rightarrow -1 = -\frac{1}{1}(-1) + b \rightarrow b = -2 \end{cases}$
 $\Rightarrow AH = \frac{|y + \frac{1}{1}x - 3|}{\sqrt{1 + \frac{1}{1}}} = \frac{|1 + \frac{1}{1}(-1) - 3|}{\sqrt{1 + \frac{1}{1}}} = \frac{|1 - 1 - 3|}{\sqrt{2}} = \frac{3}{\sqrt{2}} = 1,2$ $\rightarrow$ $\Delta - 1,2 = 3,8$

$$\begin{aligned} & \begin{cases} y - x = r \\ fy = ax + r \end{cases} \xrightarrow{\text{Elimination}} \begin{cases} y - x = r \\ fy - ax = r \end{cases} \xrightarrow{\times 2} \begin{cases} 2y - 2x = 2r \\ 2fy - 2ax = 2r \end{cases} \Rightarrow \boxed{a = 2} \end{aligned}$$

$S_{\text{orb}} = S$ $\rightarrow$ $\text{bias} = \frac{|c-c'|}{\sqrt{a'^2+b'^2}} = \frac{|v-v|}{\sqrt{r^2+r^2}} = \frac{0}{\sqrt{r_0}} = \frac{0}{r\sqrt{2}} \rightarrow$ فقط
 $\text{علاقه} = \frac{b}{r} = \frac{0}{r\sqrt{2}}$
 $\text{منطبق } S = \pi r^2 = \pi \left(\frac{0}{r\sqrt{2}} \right)^2 = \pi \times \frac{0 \times 5}{14 \times 0} = \frac{0 \pi}{14}$

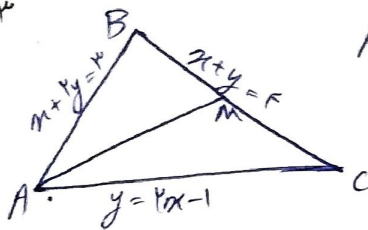
$A(2, 3)$ $MH = 5$
 $B(1, 1)$ $m = \text{وسطية} \rightarrow \left(\frac{1+2}{2}, \frac{1+3}{2}\right) = \left(\frac{3}{2}, \frac{4}{2}\right) = (1.5, 2)$
 $C(-1, -3)$ $H_{\text{نقطه}} = \text{حل التقاطع} \rightarrow \begin{cases} AB = \begin{cases} m = \frac{\Delta y}{\Delta x} = \frac{3-1}{2-1} = \frac{2}{1} = 2 \\ y = -x + b \xrightarrow{(1,1)} 1 = -1 + b \rightarrow \boxed{b=2} \end{cases} \\ y = -x + 2 \rightarrow \textcircled{I} \text{ خط} \\ y = x + (-4) \rightarrow \textcircled{II} \text{ خط} \end{cases}$

 $\begin{cases} y = -x + 2 \\ y = x - 4 \end{cases} \rightarrow -x + 2 = x - 4 \rightarrow -2x = -6 \rightarrow x = 3 \rightarrow y = 3 - 4 = -1 \rightarrow H(3, -1)$

$(3m-2)x + (5-m)y - 7 = 0$
 $(m+1)x - (2m-4)y + 1 = 0$
 $\begin{cases} m_1 = -\frac{a}{b} = \frac{2-3m}{5-m} \\ m_2 = -\frac{a}{b} = \frac{m+1}{2m-4} \end{cases}$
 $\xrightarrow{\text{عکس و قرینه بودن}} \frac{m+1}{2m-4} = \frac{m-5}{2-3m}$
 $\xrightarrow{\text{طرفین کو ضرب}} \frac{m+1}{2m-4} = \frac{m-5}{2-3m} \Rightarrow \frac{m+1}{2m-4} = \frac{m-5}{2-3m}$
 $\Rightarrow 5m^2 - 13m + 18 = 0 \rightarrow m = \frac{13 \pm \sqrt{149 - 360}}{10} \rightarrow \Delta < 0$
 پس این معادله به دو ریشه و این دو خط هرگز عمود به هم نمی‌شوند.

$$\sqrt{\frac{y}{y}} = \sqrt{\frac{1}{\frac{y}{y}}} \leftarrow \sqrt{\frac{1}{\frac{1}{\frac{y}{y}} + \frac{1}{\frac{y}{y}}}} = \sqrt{\left(\frac{1}{\frac{y}{y}}\right)^y + \left(\frac{1}{\frac{y}{y}}\right)^y} \leftarrow \begin{matrix} M_0(x, y) \\ H(x, y, 1, 1) \end{matrix} \leftarrow \mathcal{F} = MH \leftarrow : \text{Jacobian} \leftarrow$$

$$\begin{cases} AB: x+y=3 \\ AC: y=2x-1 \\ BC: x+y=5 \end{cases}$$



$$A = \begin{cases} x+y=3 \\ y=2x-1 \end{cases} \rightarrow \boxed{x=1, y=1}$$

$$B = \begin{cases} x+y=3 \\ x+y=5 \end{cases} \rightarrow \boxed{x=0, y=3}$$

$$C = \begin{cases} y=2x-1 \\ x+y=5 \end{cases} \rightarrow \boxed{x=2, y=3}$$

AM = ?

AM = $\frac{2}{3} \times \text{median from A}$

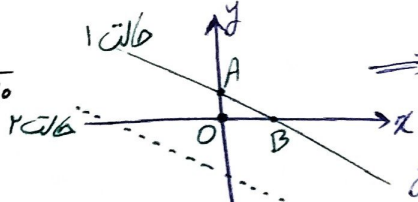
M $\rightarrow$ B, C $\rightarrow$ $(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}) \Rightarrow (\frac{0+2}{2}, \frac{3+3}{2}) = (1, 3)$

AM = $\sqrt{(\frac{1}{2}-1)^2 + (\frac{3}{2}-1)^2} = \frac{\sqrt{5}}{2}$

m = -1/2

فاصله خط از این خط = $\sqrt{20}$

فاصله A, B = 8



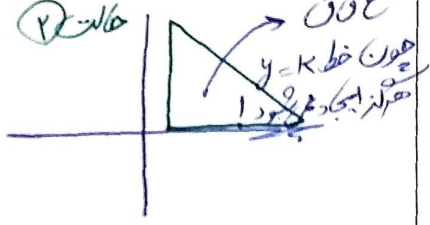
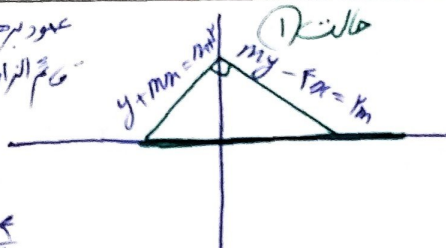
فاصله = $\frac{|am+by+c|}{\sqrt{a^2+b^2}}$ $\rightarrow$ $\frac{|c|}{\sqrt{a^2+b^2}} = \sqrt{20}$

$y = -\frac{1}{2}x + b \rightarrow 2y + x - 2b = 0$

$-\frac{a}{b} = -\frac{1}{2} \rightarrow 2a = b$
 $\rightarrow \begin{cases} 2b = 10 \rightarrow b = 5 \\ 2b = -10 \rightarrow b = -5 \end{cases}$
 $y = -\frac{1}{2}x \pm 5$

$\frac{|c|}{\sqrt{a^2+b^2}} = \sqrt{20} \rightarrow |c| = \sqrt{100} = 10$
 $\rightarrow \begin{cases} x=0 \rightarrow y=\pm 5 \\ y=0 \rightarrow x=\pm 10 \end{cases}$

مشکت $\begin{cases} my - fx = 2m \\ y + mx = x + 1 \end{cases}$
 محور x



8 حالت = 5/2 $\begin{cases} m_1 = \frac{f}{m} \\ m_2 = -m+1 \end{cases}$
 حالت 1 $\rightarrow \frac{m}{f} = m-1 \rightarrow m = \frac{f}{m}$

فاصله ضرب تقادیر m = 8 حالت $\rightarrow$ غرض

* برآینه خط نسبت به یک نقطه کافر است که یک نقطه را خواهم برای خط اشتب کنیم و سپس از آن به نقطه به نقطه $y = 2x - 3$
 * بیش مردم *
 * سپس نقطه را به خط جا باندازی کنیم: $M(2, -2) \rightarrow y = 2x - 3 \rightarrow (1, -1)$

$\rightarrow A' = 2M - A \rightarrow A' = (\frac{2(2)-1}{2}, \frac{2(-2)-(-1)}{-2}) \rightarrow A' = (1, -3)$

فاصله خط به خط $\rightarrow y = 2x + b \rightarrow -3 = \frac{2(3)+b}{2} \rightarrow b = -9 \rightarrow y = 2x - 9$

$A(1, 2) \rightarrow \begin{cases} y = -x + b \\ y = x + 5 \end{cases} \rightarrow \begin{cases} b = 3 \\ y = -x + 3 \end{cases}$

$A' = 2M - A \rightarrow A'(a, b) \rightarrow \begin{cases} y = -x + 3 \\ y = x + 5 \end{cases} \rightarrow \begin{cases} x = -1 \\ y = 4 \end{cases}$

$2b - a = ? \rightarrow A' = 2M - A \rightarrow 2(-1, 4) - (1, 2) = (-3, 6)$
 $\rightarrow \begin{cases} a = -3 \\ b = 4 \end{cases} \rightarrow 2b - a = 12 - (-3) = 15$

فاصله = $\sqrt{\Delta x^2 + \Delta y^2} = \sqrt{5^2 + 10^2} = \sqrt{125} = 5\sqrt{5}$