

$$\overline{AB} \rightarrow m = \frac{\Delta y}{\Delta x} \Rightarrow \frac{-11}{2} = -\frac{11}{2} \quad \left(\begin{array}{l} \text{مورد منفی} \\ \text{نقطه مورد منفی} \end{array} \right) \quad \left(+\frac{1}{2} \right)$$

مورد منفی و لاخطی AB می گذرد
 $m = -\frac{1}{2}$

معادله
 مورد منفی: $(y-1) = \frac{1}{2}(x-2)$

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

$$BC = \sqrt{16+9} = 5 = \Delta x \quad | \quad m_{BC} = \frac{\Delta y}{\Delta x} = \frac{4}{5} \quad \text{و} \quad y-2 = \frac{4}{5}x-2 \Rightarrow y = \frac{4}{5}x + \frac{2}{5}$$

$m_{AH} = \frac{4}{5}$ و $y-1 = \frac{4}{5}x - \frac{1}{5}$ $\left| \quad BC - AH = 5 - 2 = 3 \right|$ جواب نهایی

نقطه $H \Rightarrow \begin{cases} y = \frac{4}{5}x + \frac{2}{5} \\ y = \frac{4}{5}x - \frac{1}{5} \end{cases} \Rightarrow -\frac{4}{5}x + \frac{2}{5} = \frac{4}{5}x - \frac{1}{5} \Rightarrow 25x = 35 \Rightarrow x = \frac{7}{5}$
 $y = -\frac{2}{5} = -\frac{1}{2.5}$
 $AD = \sqrt{\frac{4^2}{25} + \frac{9}{25}} = \frac{5}{5} = 1$

$2y = x + 1 \quad | \quad 4y = 5x + 2$
 $y = \frac{x}{2} + \frac{1}{2} \quad | \quad y = \frac{5}{4}x + \frac{1}{2}$
 $\frac{a}{b} = \frac{1}{2} \rightarrow a = 2$
 $y = \frac{x}{2} + \frac{1}{2} \quad | \quad y = \frac{5}{4}x + \frac{1}{2}$
 $d = \frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{2}{\sqrt{1+\frac{25}{4}}} = \frac{2}{\frac{\sqrt{29}}{2}} = \frac{4}{\sqrt{29}} = \frac{4\sqrt{29}}{29}$

$m_{AB} = \frac{\Delta y}{\Delta x} = \frac{2}{-2} = -1 \Rightarrow m_{CH} = +1$
 $y+2 = 1(x+1) \Rightarrow y = x-1$

مورد $AB \Rightarrow y-2 = -1(x-2) \Rightarrow y = -x+4$

مورد $CH \Rightarrow y+2 = 1(x+1) \Rightarrow y = x-1$
 $m_{AH} = \sqrt{\frac{1}{4} + \frac{1}{4}} = \sqrt{\frac{2}{4}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

نقطه $H \Rightarrow \begin{cases} y = x-1 \\ y = -x+4 \end{cases} \Rightarrow x-1 = -x+4 \Rightarrow 2x = 5 \Rightarrow x = \frac{5}{2}$
 $y = \frac{3}{2}$

$(\Delta-m)y = -(2m-2)x+1 \quad | \quad (2m-2)y = (m+1)x+1$
 $y = \frac{-(2m-2)}{\Delta-m}x + \frac{1}{\Delta-m} \quad | \quad y = \frac{m+1}{2m-2}x + \frac{1}{2m-2}$

$\frac{-2m+2}{\Delta-m} \times \frac{m+1}{2m-2} = -1 \Rightarrow -\frac{2m^2-2m+2m+2}{\Delta-m} = -1 \Rightarrow -2m^2-12m+19=0 \rightarrow \Delta$

$$AB \Rightarrow y = -\frac{n}{r} + \frac{r}{r} \quad | \quad AC \Rightarrow y = 2n - 1 \quad | \quad BC \Rightarrow y = -n + r \quad \left| \begin{array}{c|c|c} A & B & C \\ \hline 1 & -1 & r \end{array} \right|$$

الف: $-\frac{n}{r} + \frac{r}{r} = 2n - 1 \rightarrow \frac{r-n}{r} = 2n - 1 \rightarrow r - n = 2nr - r \rightarrow r = 2nr \rightarrow n = 1, y = 1$ $BC = \frac{1-1}{r} = 0 \rightarrow m_{AH} = +1$

ب: $-\frac{n}{r} + \frac{r}{r} = -n + r \rightarrow \frac{r-n}{r} = -n + r \rightarrow r - n = -nr + r^2 \rightarrow n = 0, y = -1$

ج: $2n - 1 = -n + r \rightarrow 3n = r + 1 \rightarrow n = \frac{r+1}{3}, y = \frac{r}{3}$

$m_{AB} \rightarrow AM = \sqrt{\frac{r^2}{9} + 1} = \sqrt{\frac{r^2 + 9}{9}} = \frac{\sqrt{r^2 + 9}}{3}$ $BC = \frac{1-1}{r} = 0 \rightarrow m_{BC} = 0$ $AC = \frac{1-r}{r} = -1 \rightarrow m_{AC} = +1$ $AB = \sqrt{1 + r^2} = \sqrt{r^2 + 1}$ $AM = \frac{1}{\sqrt{r^2 + 1}}$ $BC = \frac{1}{r}$

$OH = \sqrt{r^2 + 1} = r\sqrt{2}$ $m_{OH} = 1 \rightarrow y = 2n$ $OH = \sqrt{n^2 + 4n^2} = \sqrt{5}n = n\sqrt{5} = r\sqrt{2}$

$AB = \sqrt{1 + r^2} = \sqrt{r^2 + 1}$ $y = \frac{1}{r}n + \frac{r}{r}$ $n = \frac{r}{r} = 1$ $y = 1$ $AB = \sqrt{1 + r^2} = \sqrt{r^2 + 1}$

$my = rn + 2m \rightarrow y = \frac{r}{m}n + 2 \rightarrow -\frac{r}{m}n = 2 \rightarrow n = -\frac{2m}{r}$

$y = 2(1-n) + 2 \rightarrow (m-1)n = 2 \rightarrow n = \frac{2}{m-1}$

$\frac{r}{m}n + 2 = (1-n) + 2$

$\frac{r}{m} = 1 - m$

$r = m - m^2 \rightarrow m^2 - m + r = 0$

$y = 2$

$\frac{r}{m} = \frac{1}{m-1}$

$D = \frac{r}{r}$

$\left| \frac{r}{m-1} - \left(-\frac{2m}{r}\right) \right| = \frac{r}{r}$

$r + m^2 - m = 2m - 2 \rightarrow m^2 - 4m + 4 = 0$

$m^2 + m - 1 = 0$

$m = \frac{-1 \pm \sqrt{5}}{2} = \frac{-1 + \sqrt{5}}{2}$ $(-1 - \sqrt{5})/2$

$n_m = \frac{n_A + n_{A'}}{2} \Rightarrow 1 = \frac{1 + n_{A'}}{2} \Rightarrow n_{A'} = 1$

$y_m = \frac{y_A + y_{A'}}{2} \Rightarrow -1 = \frac{1 + y_{A'}}{2} \Rightarrow y_{A'} = -3$

$A' \left| \begin{array}{c} 1 \\ -3 \end{array} \right|$ $A' \left| \begin{array}{c} 1 \\ -3 \end{array} \right|$

$y' + 3 = 2(n - 1)$ $y' = 2n - 9$

$AA' \perp d_y \rightarrow m_y = 1 \rightarrow m_{AA'} = -1 \rightarrow y - 1 = -1(n - 1) \Rightarrow y = -n + 2$

$y = -n + 2$ $y = n + 2$ $-2 = 2n \rightarrow n = -1$

$y = 1 \rightarrow B \left| \begin{array}{c} -1 \\ 1 \end{array} \right|$

$n_B = \frac{n_A + n_{A'}}{2} \rightarrow -1 = \frac{1 + n_{A'}}{2} \Rightarrow n_{A'} = -3$ $y_B = \frac{y_A + y_{A'}}{2} \rightarrow -1 = \frac{1 + y_{A'}}{2} \Rightarrow y_{A'} = -3$ $A' = (-1, -3)$ $(1 + 3 = 4)$