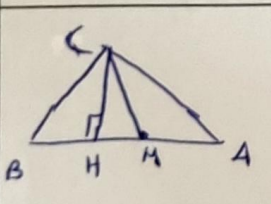


$A(7, -4) \quad B(2, 1) \rightarrow m = \frac{1+4}{2-7} = -1 \rightarrow m' = \frac{1}{-1} = -1$ و $M \left| \begin{matrix} 7 & -4 \\ 2 & 1 \end{matrix} \right|$
 $y - 1 = \frac{1}{-1}(x - 2) \rightarrow y - 1 = -x + 2 \rightarrow y = -x + 3 \rightarrow y = x + 3$

$A(3, 1) \quad B(-4, 5) \quad C(-1, 3) \quad BC \text{ طول} = \sqrt{(4)^2 + (2)^2} = \sqrt{20} = 2\sqrt{5}$
 $BC \text{ میانه} \rightarrow m = \frac{3-5}{-1+4} = \frac{-2}{3} \rightarrow y = ax + b \rightarrow y = -\frac{2}{3}x + \frac{8}{3}$
 $A \text{ میانه} = \frac{ka_0 + by_0 + c}{\sqrt{a^2 + b^2}} = \frac{3+12-8}{\sqrt{4+9}} = 2 \rightarrow 2-2=0$

$ry - a = v \rightarrow ry = ax + r \rightarrow m = \frac{1}{r} = \frac{a}{r} \rightarrow a = r$
 $ry = a + v \rightarrow ry = rx + r \rightarrow ry = x + 1 \rightarrow m_{AB} = \frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{|1-1|}{\sqrt{1+1}} = \frac{0}{\sqrt{2}} = 0$
 $r = \frac{r}{\sqrt{2}} \rightarrow S = \pi r^2 = \pi \times \frac{4}{2} \rightarrow S = \frac{4}{2} \pi \rightarrow \pi = r = \frac{rv}{2}$


 $A \left| \begin{matrix} 7 \\ 7 \end{matrix} \right| \quad B \left| \begin{matrix} 4 \\ 1 \end{matrix} \right| \quad C \left| \begin{matrix} -1 \\ -3 \end{matrix} \right| \quad M \left| \begin{matrix} 7+4 \\ 7+1 \end{matrix} \right| = \left| \begin{matrix} 11 \\ 8 \end{matrix} \right|$
 $AB \text{ میانه} = m = \frac{4-1}{7-7} = -1 \rightarrow m'_{CH} = 1 \rightarrow y_{AB} = -x + 8 \rightarrow y_{CH} = x + 8$
 $-x + 8 = x + 8 \rightarrow x = 0 \rightarrow y = 8 \rightarrow MH \text{ طول} = \sqrt{(7-0)^2 + (-4-8)^2} = \sqrt{49+144} = \sqrt{193}$

$(m-1)x + (2-m)y = v \rightarrow (m+1)x - (m-1)y = 1$
 $m = \frac{b}{4} = \frac{-(m-1)}{2-m} = \frac{1-m}{2-m}$
 $\frac{m+1}{m-1} = \frac{m-2}{1-m} \rightarrow 4m^2 - 12m + 1 = 0 \rightarrow b^2 - 4ac = 12 - 4 \times 1 \times 1 = 8$
 $\Delta < 0 \rightarrow m \text{ میانه}$

$AB: x+2y=1, AC: y=x-1, BC: x+y=1$
 $\downarrow$
 $P \in AB \rightarrow A \begin{vmatrix} 1 & 2 \\ 1 & -1 \end{vmatrix} = 1 - 2 = -1 \rightarrow P = 1 - 2 = -1$
 $\downarrow$
 $C \in AC \rightarrow C \begin{vmatrix} 1 & -1 \\ 1 & 1 \end{vmatrix} = 1 - 1 = 0 \rightarrow C = 1 - 1 = 0$
 $AH = \frac{|y+x-1|}{\sqrt{2}} \rightarrow A \begin{vmatrix} 1 & 1 \\ 1 & -1 \end{vmatrix} = 1 - 1 = 0 \rightarrow AH = \frac{2\sqrt{2}}{2} = \sqrt{2}$

$m = -\frac{1}{r}$
 $y - y_1 = m(x - x_1) \rightarrow y - 0 = -\frac{1}{r}(x - A) \rightarrow y = -\frac{x}{r} + \frac{A}{r}$
 $y - B = -\frac{1}{r}(x - 0) \rightarrow y = -\frac{x}{r} + B \rightarrow B = \frac{A}{r} \rightarrow rB = A$
 $\frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}} = 0 \rightarrow \frac{|0 + 0 - B|}{\sqrt{1 + \frac{1}{r^2}}} = \sqrt{B^2} \rightarrow \frac{B}{\sqrt{1 + \frac{1}{r^2}}} = B \rightarrow A = B, A = 1$
 $|0 \ 0| \rightarrow \sqrt{(1-0)^2 + (0-0)^2} = \sqrt{1+0} = 1$

$my - rx = r$
 $y = \frac{rx}{m} + r$
 $y = x - m(x - 1) + 1 \rightarrow y = x(1 - m) + 1$
 $\frac{m}{1 - m} = \frac{r}{1 - m} \rightarrow m = r$
 $\frac{m}{1 - m} = \frac{r}{1 - m} \rightarrow m = r$
 $\frac{m}{1 - m} = \frac{r}{1 - m} \rightarrow m = r$

$y = x - 1$
 $A \begin{vmatrix} 1 & -1 \\ 1 & 1 \end{vmatrix} = 1 - 1 = 0 \rightarrow A = 1 - 1 = 0$
 $y - y_1 = m(x - x_1) \rightarrow y - 0 = 1(x - 1) \rightarrow y = x - 1$

$A(1, 2) \quad y = x + 0 \quad A'(a, b)$
 $m = 1 \rightarrow m' = -1 \rightarrow y = -x + b \rightarrow 1 = -1 + b \rightarrow b = 2 \rightarrow y = -x + 2$
 $x + 0 = -x + 2 \rightarrow x = 1 \rightarrow y = 1$
 $1 - 2 = -1 \rightarrow 1 + 2 = 3$