

$$A(4, -9) \text{ و } B(2, 1) \xrightarrow{\text{نقطه وسط}} M\left(\frac{4+2}{2}, \frac{-9+1}{2}\right) \Rightarrow M(3, -4)$$

$$M_{AM} = \frac{14}{-2} = -7 \Rightarrow M = \frac{1}{-7}$$

$$y - 1 = \frac{1}{-7}(x - 2) \Rightarrow y - 1 = -\frac{x}{7} + \frac{2}{7} \Rightarrow y = -\frac{x}{7} + \frac{9}{7} \Rightarrow 7y = -x + 9$$

$$BC = \sqrt{(-1+4)^2 + (3-1)^2} = \sqrt{10} = 2\omega$$

$$m = \frac{3-1}{-1+4} = \frac{2}{3} \Rightarrow \text{معادله خط} = 4x + 3y = 20$$

$$d = \frac{|4\omega - 3 + 12|}{\sqrt{16+9}} = \frac{13}{5} = 2 \Rightarrow AH$$

$AH - BC = 5 - 2 = 3$ بیشتر

$$4y = 9x + 2 \text{ و } 4y - x = 2$$

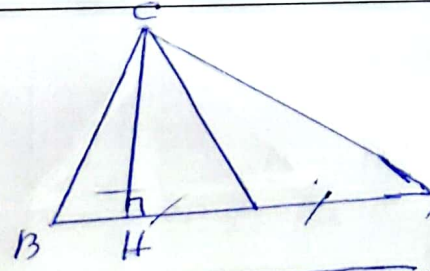
$\downarrow$ موازی $m = \frac{1}{4}$

$$\frac{4y}{4} - \frac{x}{4} = \frac{2}{4} \Rightarrow 4y - x = 2$$

$\odot$

$$d = \frac{|-1+1|}{\sqrt{4+1}} = \frac{0}{\sqrt{5}} = 0 \Rightarrow r = \frac{3}{\sqrt{5}}$$

$$S_{\text{op}} = \left(\frac{3}{\sqrt{5}}\right)^2 \times \pi = \frac{9\pi}{5}$$



$M \rightarrow \text{میان} \rightarrow M\left(\frac{4+2}{2}, \frac{-9+1}{2}\right) \Rightarrow M(3, -4)$

$H \rightarrow \text{پایه} \rightarrow$

$$M_{AB} = \frac{1-3}{4-2} = -1 \Rightarrow -x + 4 = x - 2 \Rightarrow x = 3$$

$\uparrow$ $x = 3$

$$y = 1$$

$$MH = \sqrt{(3(4-3))^2 + (1(4-2))^2} = \sqrt{10}$$

$$MH = \sqrt{10} \Rightarrow \frac{\sqrt{10}}{2}$$

$$M_{CH} = 1 \Rightarrow y + 3 = x + 1 \Rightarrow y = x - 2$$

$\uparrow$ معادله خط

$$(3m-2)x + (4-m)y - 7 = 0 \text{ و } (m+1)x - (4m-5)y + 12 = 0$$

$$\frac{-3m+2}{4-m} \times \frac{-m-1}{-4m+5} = -1 \Rightarrow \frac{3m^2 + 4m - 2m - 2}{-10m + 20 + 4m^2 - 5m} = -1$$

$$3m^2 + 4m - 2m - 2 = -4m^2 + 15m - 20$$

$$7m^2 - 11m + 18 = 0$$

$$m = \frac{11 \pm \sqrt{121 - 4 \times 7 \times 18}}{14}$$

بازای هیچ مقدار m

$A \text{ لقطه} \Rightarrow x+y(2x-1)2^3$ $A \text{ و } AB \text{ قطعه} \quad m_2 \left(\frac{10}{3}, \frac{4}{3} \right)$

$\omega x2 \Rightarrow x21 \quad A(1,1)$

$Am_2 \sqrt{\left(\frac{10}{3}-1\right)^2 + \left(\frac{4}{3}-1\right)^2}$

$B \text{ لقطه} \Rightarrow x+y2^3, x+y2^4$

$B \text{ و } AB \text{ قطعه}$

$Am_2 \frac{\sqrt{40}}{10} = \frac{\omega \sqrt{2}}{10}$

$x2 \Rightarrow y2-1 \quad B(\omega, -1)$

$C \text{ لقطه} \Rightarrow y2x-1, x+y2^4$

$B \text{ و } AC \text{ قطعه}$

$AH_2 \frac{1+1-4}{2} = \frac{2}{\sqrt{2}} = \sqrt{2}$

$x+y2-12^4 \Rightarrow C\left(\frac{\omega}{10}, \frac{4}{10}\right)$

$\frac{AM}{AH} = \frac{\frac{\omega \sqrt{2}}{10}}{\sqrt{2}} = \frac{\omega}{10}$

$(y2 - \frac{1}{y}x+b)^2 \Rightarrow y^2y^2 = -x+y^2b$
 $y^2y + x - y^2b20$

$d_2 \frac{1 - y^2b}{\sqrt{1^2 + y^2}} = \frac{y|b|}{\sqrt{\omega}} = \sqrt{2}$

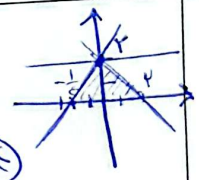
$|b|2 \omega \Rightarrow b2 \omega$

$A(0, \omega) \quad B(1, \omega) \rightarrow 0 = -\frac{1}{y}x + \omega \Rightarrow \frac{1}{y}x2 \omega$

$AB_2 \sqrt{\left(\frac{10-0}{10}\right)^2 + \left(\frac{0-\omega}{10}\right)^2} = \sqrt{1+\omega} \Rightarrow AB_2 \omega \sqrt{\omega}$

$y2(1-m)x+y \rightarrow 0 = (1-m)x+y$
 $x-mx+y20$

$\frac{y2y}{x20} \rightarrow y2y = \text{ارتفاع}$



$y2 \frac{x}{m} + y \rightarrow 0 = \frac{x}{m} + y$

$x-1 = -y$

$|x_1 - x_2| = \left| \frac{-y}{1-m} + \frac{m}{y} \right|$

$\hookrightarrow \frac{\omega}{y} \Rightarrow 1) \frac{-y}{1-m} + \frac{m}{y} = \frac{\omega}{y} \Rightarrow m^2 + ym - 120 \Rightarrow m=1, m=-y$

$2) \frac{-y}{1-m} + \frac{m}{y} = -\frac{\omega}{y} \Rightarrow m^2 + m + y20 \quad \Delta < 0$

$\frac{y}{x} = y \rightarrow \frac{y}{x} = -\frac{1}{y} \Rightarrow y+y = -\frac{1}{y}(x-y) \Rightarrow y+y2 = -\frac{x}{y} + 1$

$y_1 \neq y_2 \Rightarrow -\frac{x}{y} - 1 = yx - y^2 \Rightarrow y = \frac{y^2x}{y} + \frac{x}{y} \Rightarrow y = \frac{\omega x}{y} \Rightarrow x = \frac{x}{\omega}, y = -\frac{y}{\omega}$

$m(y, -y) \quad H\left(\frac{x}{\omega}, -\frac{y}{\omega}\right) \Rightarrow m' + m = H \Rightarrow m'_x = yH_x - m_x$

$m'\left(-\frac{y}{\omega}, -\frac{x}{\omega}\right) \quad m'_y = yH'_y - m_y \Rightarrow -\frac{1x}{\omega} + \frac{10}{\omega} = -\frac{y}{\omega}$

$\hookrightarrow \frac{y}{x} = \frac{-1}{y} = \frac{y+y}{-y+y} \Rightarrow y = -\frac{1}{y}x - 1$

$y2 = x+y \rightarrow \frac{y}{x} = 1 \rightarrow \frac{y}{x} = -1 \quad A(1, x)$

$y-y = -1(x-1) \Rightarrow y-y = -x+1 \Rightarrow y = -x+1$

$y^2 - x = x+y \Rightarrow y^2 - x = x+y$

$B \begin{vmatrix} -1 \\ 4 \end{vmatrix} \quad x_B = \frac{x_A + x_{A'}}{y} \Rightarrow 1 = \frac{1 + x_{A'}}{y} \rightarrow x_{A'} = y - 1$

$y_B = \frac{y_A + y_{A'}}{y} \Rightarrow 4 = \frac{y + y_{A'}}{y} \rightarrow y_{A'} = 3y - 4$

$A'(-y, 4) \quad y(4) - (-y) = 10$