

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

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

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

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

$$m = \frac{3-1}{-1+4} = \frac{2}{3} \Rightarrow \text{معادله خط} = 3x + 2y = 10$$

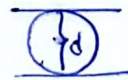
$$d = \frac{|-1-3+12|}{\sqrt{(-3)^2 + (4)^2}} = \frac{8}{5} = 2 \Rightarrow AH$$

$$AH - BC = 2 - 2 = 0 \Rightarrow \text{بیسر}$$

$$4y = 9x + 2 \text{ و } 4y - x = 2$$

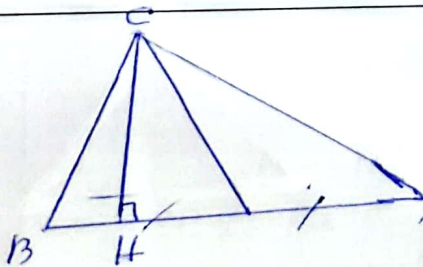
$$\downarrow \text{موازی} \quad m = \frac{1}{4}$$

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



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

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



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

$$H \rightarrow \text{ارتفاع} \rightarrow$$

$$M_{AB} = \frac{1-3}{4-2} = -1 \Rightarrow y - 3 = -x + 2 \Rightarrow y = -x + 5$$

$$-x + 5 = x - 2 \Rightarrow x = 3.5$$

$$y = 1.5$$

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

$$MH = \sqrt{36 + 9} = \sqrt{45} = 3\sqrt{5}$$

$$y - 3 = -x + 2 \Rightarrow y = -x + 5$$

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

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

$$\frac{-3m+2}{5-m}x - \frac{m-1}{-4m+5} = -1$$

$$\Rightarrow \frac{3m^2 + 4m - 2m - 2}{-10m + 20 + 4m^2 - 5m} = -1 \Rightarrow 3m^2 + m - 2 = -4m^2 + 15m - 20$$

$$5m^2 - 14m + 18 = 0$$

$$m = \frac{14 \pm \sqrt{14^2 - 4 \cdot 5 \cdot 18}}{2 \cdot 5}$$

بازای هیچ مقدار m

