

$$A(-4, -1) \quad B(2, 1)$$

سوال 1:

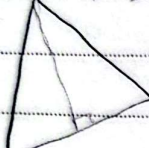
$$M: \left(\frac{x+2}{2}, \frac{y-1}{2} \right) = (1, 1) \quad m_{AB} = \frac{1 - (-1)}{2 - (-4)} = \frac{2}{6} = \frac{1}{3}$$

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$$m_1 = \frac{1}{3}$$

$$y - y_1 = m(x - x_1) \rightarrow y - 1 = \frac{1}{3}(x - 2) \rightarrow y = \frac{1}{3}x + \frac{1}{3}$$

$$A(2, 1)$$



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

سوال 2:

$$B(-1, 3)$$

$$m_{BC} = \frac{3 - 1}{-1 - (-4)} = \frac{2}{3}$$

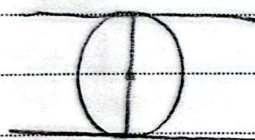
$$y - 3 = \frac{2}{3}(x + 1)$$

$$y = \frac{2}{3}x + \frac{11}{3} \rightarrow 3y + 11 - 2x = 0$$

$$AH = \frac{|3 \times 1 + 11 - 2 \times 2|}{\sqrt{2^2 + 3^2}} = \frac{10}{\sqrt{13}} = \frac{10\sqrt{13}}{13}$$

$$BC - AH = \omega - \frac{10\sqrt{13}}{13} = \frac{10\sqrt{13}}{13}$$

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$$y - x - 2 = 0$$

$$y - ax = 2 \rightarrow \frac{y - a}{1} \cdot \frac{x - 1}{1} = 0$$

$$\frac{|C - C'|}{\sqrt{a^2 + b^2}} = \frac{|-1 - (-1)|}{\sqrt{1 + 1}} = \frac{0}{\sqrt{2}} = 0$$

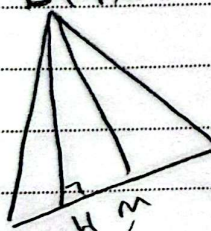
سوال 3:

$$\pi r^2 = \frac{9}{\omega} \pi$$

$$\frac{9\sqrt{2}}{\omega} \times \frac{1}{r} = \frac{9\sqrt{2}}{\omega} \rightarrow r = \frac{9\sqrt{2}}{\omega}$$

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$$B(-1, 3)$$



$$m_{AB} = \frac{3 - 1}{-1 - 2} = \frac{2}{-3} = -\frac{2}{3}$$

$$y - 3 = -\frac{2}{3}(x + 1)$$

$$y = -\frac{2}{3}x + \frac{10}{3} \rightarrow 3y + 10 - 2x = 0$$

سوال 4:

$$B(-1, 3)$$

$$\frac{y + 1}{2} = 3$$

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

$$AH = \frac{|1 \times 1 + 1 - 2 \times 2|}{\sqrt{1^2 + 1^2}} = \frac{1}{\sqrt{2}}$$

$$CM = \sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{2}}\right)^2} = \sqrt{1} = 1$$

$$2 \rightarrow CM^2 = CH^2 + MH^2$$

$$1 = \frac{1}{2} + MH^2 \rightarrow MH = \frac{1}{\sqrt{2}}$$

$$\frac{1}{2} = \frac{1}{2} \rightarrow \frac{1}{2}$$

$$(2m-2)x + (\omega-m)y - v = 0 \rightarrow \frac{-2m+2}{\omega-m}$$

سوال 5

$$(m+1)x + (2m-4)y + 1 = 0 \rightarrow \frac{-m-1}{-2m+4}$$

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$$\frac{-2m+2}{\omega-m} = \frac{-m-1}{-2m+4} \rightarrow -2m+2(m+1) = (\omega-m)(-2m+4)$$

$$-2m^2 - m + 2 = 2m^2 - 4m + 2$$

$$-4m^2 + 3m - 1 = 0 \rightarrow \Delta < 0$$

جوابی ندارد

$$AB = x + 2y = 2$$

$$x + 2y = 2$$

$$AC = y = 2x - 1$$

$$y - 2x = -1$$

$$BC = x + y = 1$$

$$\omega y = \omega \rightarrow y = 1 \quad \left. \begin{array}{l} x = 1 \\ y = 1 \end{array} \right\} A(1,1)$$

سوال 6

$$x + 2y = 2$$

$$x + y = 1$$

$$B(\omega, -1)$$

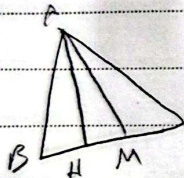
$$y - 2x = -1$$

$$-2x + y = -1$$

$$C\left(\frac{\omega}{2}, \frac{v}{2}\right)$$

$$-2x = -\omega \rightarrow x = \frac{\omega}{2}$$

$$y = \frac{v}{2}$$



$$M \left| \begin{array}{l} \frac{\omega + \omega}{2} = \frac{10}{2} \\ \frac{-1 + v}{2} = \frac{v}{2} \end{array} \right.$$

$$AM = \sqrt{\left(1 - \frac{10}{2}\right)^2 + \left(1 - \frac{v}{2}\right)^2} = \frac{\sqrt{\omega}}{2}$$

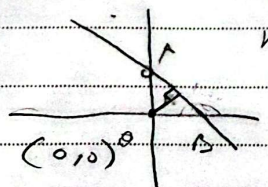
$$\frac{M}{BC} = \frac{\frac{v}{2} + 1}{\frac{\omega}{2} - \omega} = \frac{\frac{10}{2}}{-\frac{10}{2}} = -1$$

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

$$y = -x + \omega - 1 \rightarrow y + x - \omega + 1 = 0$$

$$AH = \frac{|1 + 1 - \omega + 1|}{\sqrt{1 + 1}} = \frac{|3 - \omega|}{\sqrt{2}}$$

$$\frac{AM}{AH} = \frac{\frac{\omega \sqrt{2}}{2}}{\frac{|3 - \omega|}{\sqrt{2}}} = \frac{\omega \times \sqrt{2}}{2 \times |3 - \omega|} = \frac{\omega}{\sqrt{2} |3 - \omega|}$$



$$m = -\frac{1}{2}$$

$$y - A = -\frac{1}{2}(x - 0)$$

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

$$y - 0 = -\frac{1}{2}(x - B)$$

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

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

$$\frac{|1 \times 0 + \frac{1}{2} \times 0 - \frac{B}{2}|}{\sqrt{1 + \frac{1}{4}}} = \sqrt{2}$$

$$\frac{|1 \times 0 + \frac{1}{2} \times 0 - A|}{\sqrt{1 + \left(\frac{1}{2}\right)^2}} = \sqrt{2}$$

$$\sqrt{1 + \left(\frac{1}{2}\right)^2} = \sqrt{2}$$

$$1 + \frac{1}{4} = 2$$

$$\sqrt{1 + \frac{1}{4}}$$

$$AB = \sqrt{(0-0)^2 + (\omega-0)^2} = \sqrt{\omega^2} = \omega$$

$$\frac{A}{\sqrt{2}} = \sqrt{2} \times \omega \rightarrow A = 2\omega$$

$$\frac{B}{2} = \frac{\omega}{2} \times \sqrt{2} \rightarrow B = \omega$$

$$\omega \sqrt{2}$$

$$\frac{A}{\sqrt{2}} = \sqrt{2} \times \omega \rightarrow A = 2\omega$$

برای شرفی تلفیق سری سائزدهم

$$m\gamma - \epsilon n = 2m \quad \gamma + mn = n + 2$$

$$(1) \gamma = 0 \Rightarrow n = -\frac{m}{\epsilon} \quad (2) mn - n = 2 \Rightarrow n = \frac{2}{m-1}$$

$$\frac{\epsilon n + 1}{m} = \frac{n(m-1) + 2}{m} \Rightarrow n = 0 \quad \gamma = 2 \quad (0, 2) \Rightarrow n = 2$$

$$(n, 0), (n, 1), (0, 2) \Rightarrow \frac{1}{\epsilon} \times 2 \times \left| \frac{2}{m-1} - \left(-\frac{m}{\epsilon}\right) \right| = \frac{\omega}{\epsilon}$$

$$\frac{2}{m-1} + \frac{m}{\epsilon} = \frac{\omega}{\epsilon} \Rightarrow \frac{\epsilon + m^2 - m}{\epsilon(m-1)} = \frac{\omega}{\epsilon} \Rightarrow \epsilon + m^2 - m = \omega(m-1) \Rightarrow m^2 - 9m + 9 = 0$$

$$\frac{2}{m-1} + \frac{m}{\epsilon} = -\frac{\omega}{\epsilon} \Rightarrow \epsilon(m^2 - m) = -\omega(m-1) \Rightarrow m^2 + \epsilon(m-1) = 0$$

$$\Delta = 1 + 4 + 4 = 9 \Rightarrow \frac{-\epsilon \pm \sqrt{9}}{2} = \frac{-\epsilon \pm 3}{2} \Rightarrow 2 \times (-2, \sqrt{3}) \times (-2, \sqrt{3}) = -3$$

$$\gamma = 2m - 3$$

نقطه (0, 2) از خط راست m عبور می کند.

$$n(1, 2) \quad \frac{0 + nA}{\epsilon} = 2 \quad nA = 4 \quad \frac{-2 + \frac{4}{A}}{\epsilon} = -2$$

$$\frac{4}{A} = -2 \Rightarrow A = -2$$

خط مورد نظر موازی خط AB است پس شیب آن 1/2 است.

$$\gamma = 2m - b \Rightarrow -1 = 2 \times \frac{1}{2} + b \Rightarrow \gamma = 2m - 9$$

$$A(1, 2)$$

$$\frac{2, H}{\epsilon} \Rightarrow \gamma = 2m + \omega$$

$$\gamma = n + \omega \Rightarrow \frac{A}{A\epsilon} = -1$$

$$\gamma - 2 = -1(n-1) \Rightarrow \gamma = -n + 1$$

$$\gamma = n + \omega$$

$$\gamma = -n + 1$$

$$2x = n \Rightarrow \gamma = 2 \Rightarrow n = -1$$

$$H(-1, 1)$$

$$H(-1, 1)$$

$$\frac{1 + nA}{\epsilon} = -1 \Rightarrow nA = -3 - 1 \quad \frac{2 + \frac{4}{A}}{\epsilon} = 2 \Rightarrow \frac{4}{A} = 4$$

$$A = (-3, 4)$$

$$a = -3 \quad b = 4$$

$$2b - a = 2 \times 4 - (-3) = 11$$