

19,5

بنیامین نوری - تکلیف 14 - یازدهم پسر B

$$AB \text{ خط } = \left| \frac{x+4}{x-4} = 1 \right| \quad m_{AB} = \frac{4+9}{x-4} = -1 \rightarrow m_{AB'} = \frac{1}{1} \rightarrow y-1 = \frac{1}{1}(x-4) \rightarrow y = x - 3 \quad (1)$$

$$\boxed{y = x - 3} \quad (2)$$

$$m_{BC} = \frac{4-3}{-4-1} = \frac{-1}{-5} = \frac{1}{5} \rightarrow BC \text{ خط } = y-3 = \frac{1}{5}(x+1) = y = \frac{x}{5} + \frac{-3+1}{5} = \frac{x}{5} - \frac{2}{5}$$

$$d_{BC} = \sqrt{(\frac{1}{5})^2 + (\frac{1}{5})^2} = \frac{\sqrt{2}}{5} \quad (3) \quad (4)$$

$$\rightarrow 3y + 4x - 5 = 0 \rightarrow \frac{|3+12-5|}{\sqrt{3^2+4^2}} = \frac{10}{5} = 2 \quad (5) \rightarrow 5-2 = 3 \rightarrow \text{فاصله از خط BC}$$

$$\frac{a}{r} = \frac{1}{2} \rightarrow a = 2 \quad \text{دایره } \left\{ \begin{array}{l} 4y - 2x = 2 \\ 4y - 2x = 14 \end{array} \right. \quad \frac{|14-2|}{\sqrt{4^2+2^2}} = \frac{12}{\sqrt{20}} = \frac{6}{\sqrt{5}} = 2r \rightarrow \pi r^2 = \pi \times \frac{6}{\sqrt{5}} \times \frac{6}{\sqrt{5}} = \frac{36}{5} \pi \quad (6) \quad (7)$$

$$M = \left\{ \begin{array}{l} \frac{x+4}{x-4} = 1 \\ \frac{1+3}{x-4} = 2 \end{array} \right. \quad m_{AB} = \frac{4-1}{x-4} = -1 \rightarrow m_{CH} = 1 \rightarrow y+3 = 1(x+1) \rightarrow y = x-2$$

$$\rightarrow y-3 = -1(x-2) \rightarrow y = -x+5 \quad \text{نقطه تقاطع } H = \text{دایره} \rightarrow x-2 = -x+5 \rightarrow 2x = 7 \rightarrow x = \frac{7}{2}$$

$$\rightarrow d_{MH} = \sqrt{(\frac{1}{2})^2 + (\frac{1}{2})^2} = \frac{\sqrt{2}}{2} \quad (8) \quad (9)$$

$$\rightarrow \frac{m+1}{2m-4} = \frac{5-m}{3m-2} \rightarrow -2m^2 + 14m - 20 = 3m^2 + m - 2 \rightarrow 5m^2 - 13m + 18 = 0 \rightarrow \Delta < 0 \quad (10) \quad (11)$$

$$A \rightarrow x+4x-2=3 \rightarrow x=1/y=1/B \rightarrow x=5/y=-1/C \rightarrow x+2x-1=4 \rightarrow x=5/3/y=2/3 \quad (12) \quad (13)$$

$$AH = \frac{|1+1-4|}{\sqrt{1^2+1^2}} = \sqrt{2} \quad M \rightarrow x = \frac{5+5}{2} = 5/y = \frac{-3+3}{2} = 0 \rightarrow d_{AM} = \sqrt{(\frac{1}{3})^2 + (\frac{2}{3})^2} = \sqrt{\frac{5}{9}} = \frac{\sqrt{5}}{3}$$

$$\frac{AM}{AH} = \frac{\sqrt{5}}{\sqrt{2}} = \frac{\sqrt{10}}{2} \quad \text{جواب نهایی} \quad (14) \quad (15)$$

$$y-0 = \frac{-1}{1}(x-A) \rightarrow y = \frac{-x}{1} + \frac{A}{1} \quad A=2B \quad \frac{|0+0-B|}{\sqrt{1^2+\frac{1}{4}}} = \frac{B}{\frac{\sqrt{5}}{2}} = \frac{2B}{\sqrt{5}} = \frac{2\sqrt{5}}{\sqrt{5}} = 2 \rightarrow B=1 \quad (16) \quad (17)$$

$$y-B = \frac{-1}{1}(x-0) \rightarrow y = \frac{-x}{1} + B \quad \text{فاصله میان } AB = \sqrt{10^2 + 8^2} = 14 \quad (18) \quad (19)$$

$$y = (1-m)x + 2 \quad y_0 \times x_0 = \frac{\Delta}{r} \rightarrow y_0 = 2 \rightarrow \left| \frac{-2}{1-m} - \left(-\frac{1 \times m}{1} \right) \right| = \left| \frac{-2+m-m^2}{1-m} \right| = \frac{\Delta}{r} \rightarrow \frac{-m^2+m-2}{1-m} = \frac{\Delta}{r}$$

$$\text{I} \rightarrow -m^2+m-2 = \Delta - \Delta m \rightarrow m^2-9m+9 \rightarrow (m-3)^2 \rightarrow m=3 \quad (20) \quad (21)$$

$$\text{II} \rightarrow -m^2+m-2 = -\Delta + \Delta m \rightarrow m^2+4m-1 \rightarrow \frac{-4 \pm \sqrt{16+4}}{2} = \frac{-4 \pm \sqrt{20}}{2} = \frac{-4 \pm 2\sqrt{5}}{2} = -2 \pm \sqrt{5} \quad (22) \quad (23)$$

$$\rightarrow 9 \times (4-\Delta) = \frac{-3}{2} \quad (24)$$

$$m_1 = m_2 = 2 \rightarrow \text{نقطه مرکزی} \rightarrow (2, 1) \rightarrow \frac{x_2 + 2}{2} = 2 \rightarrow x_2 = 2 / \frac{y_2 + 1}{2} = -2 \rightarrow y_2 = -3$$

(2) (9)

$$y + 3 = 2(x - 2) \rightarrow y = 2x - 7 \quad \checkmark$$

$$m_1 = 1 \rightarrow m_2 = -1 \rightarrow y - 2 = -1(x - 1) \rightarrow y = -x + 3 \quad d_{AA'} \rightarrow -x + 3 = x + 3 \rightarrow 2x = -2$$

(2) (10)

$$\frac{a+1}{2} = -1 \rightarrow a = -3 \quad \frac{b+2}{2} = 2 \rightarrow b = 2 \rightarrow 12 + 3 = 15 \quad \checkmark$$

$$y = 5 \leftarrow x = -1$$