

12, 70

Date

عارف حاجی حیدری

Subject

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \xrightarrow{\text{نقطه وسط}} \left(\frac{1+5}{2}, \frac{1+(-1)}{2} \right) \Rightarrow (3, 0)$$

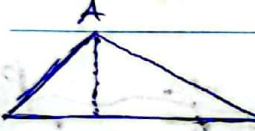
$$m_{AB} = \frac{y_A - y_B}{x_A - x_B} = \frac{-1 - 1}{5 - 1} = \frac{-2}{4} = -\frac{1}{2}$$

$\xrightarrow{\text{بسیار مهم}} m = \frac{1}{-m} = 2$
 $-m = -1$

$$y = \frac{1}{2}x + b \xrightarrow{(3,1)} \frac{1}{2} \times 3 + b = 1 \Rightarrow b = \frac{2}{2} - \frac{3}{2} = -\frac{1}{2}$$

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

~~نقطه وسط~~



$$L_{BC} = \sqrt{(5-3)^2 + (-1-(-1))^2} = \sqrt{4+0} = \sqrt{4} = 2$$

$$m_{BC} = \frac{1}{-2} \rightarrow y + \frac{1}{2}x - \frac{1}{2} = 0$$

$$BC : \text{اندازه} = 2$$

$$\text{فاصله از نقطه} = \sqrt{(y_A - y_B)^2 + (x_A - x_B)^2}$$

$$m_{BC} = \frac{y_B - y_C}{x_B - x_C} = \frac{-1 - 0}{5 - 3} = -\frac{1}{2} \rightarrow -\frac{1}{2} m_{AH} = -1 \Rightarrow m_{AH} = 2$$

90°

90°

$$\text{فاصله از نقطه} \rightarrow \frac{1}{2}x + b = 1 \Rightarrow b = \frac{2}{2} - \frac{3}{2} = -\frac{1}{2}$$

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

$$\text{فاصله از خط} = \frac{|c - c'|}{\sqrt{a^2 + b^2}}, \quad \text{فاصله از خط} \rightarrow ax + by + c = 0 \rightarrow a = 1, b = \frac{1}{2}, c = \frac{1}{2}$$

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

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90°

$$d = \frac{|1 \cdot 1 - 1|}{\sqrt{1^2 + 1^2}} = \frac{0}{\sqrt{2}} = 0$$

$\xrightarrow{\text{فاصله}} \frac{1}{\sqrt{2}} \times \frac{1}{2} = \frac{1}{2\sqrt{2}}$

$$S_{\text{مربع}} = \pi r^2 = \left(\frac{1}{\sqrt{2}} \right)^2 = \frac{1}{2} \pi$$

$$m_{AB} = \frac{y_A - y_B}{x_A - x_B} = \frac{r - r}{r - r} = \frac{r}{-r} = -1 \rightarrow m_{CH} = -1 \Rightarrow m_{CH} = 1$$

$$\left(\frac{x_A + x_B}{2}, \frac{y_A + y_B}{2} \right) = M_{AB} = (r, r)$$

خطایابی نقطه
برای پیدا کردن معادله خط CH

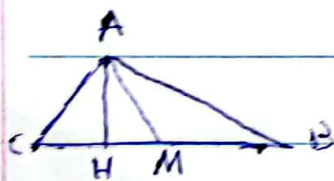
$$-1 + b = -r \Rightarrow b = -r \rightarrow y = x - r \quad y + r - r = 0$$

$$d_{MH} = \frac{|-r + r - r|}{\sqrt{1+1}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\frac{m-1}{-r+m} = \frac{-r+m+r}{d-m} \Rightarrow m^2 + r^2 = d^2$$

$$\frac{+r-m-r}{-m-1} = \frac{-r+m+r}{d-m} \Rightarrow 10m - r^2 - r^2 + r^2 = r^2 + r^2 + r^2 + r^2$$

$$m^2 - d^2 + 1 = 0 \Rightarrow r^2 - r^2 = 0$$



$$A \Rightarrow \frac{r}{r} + \frac{r}{r} = r - 1$$

$$AB \Rightarrow y = -\frac{x}{r} + \frac{r}{r}$$

$$\Rightarrow \frac{r-r}{r} = r - 1 \Rightarrow r - r = r - r \Rightarrow x_A = 1, y_A = 1$$

$$B \Rightarrow \frac{r-r}{r} = r - r \Rightarrow r - r = 1 - r \Rightarrow x_B = 1, y_B = -1$$

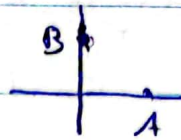
$$C \Rightarrow \frac{r-r}{r} = r - r \Rightarrow r - r = d \Rightarrow x_C = \frac{d}{r}, y_C = \frac{r}{r}$$

$$M = \left(\frac{\frac{d}{r} + \frac{d}{r}}{2}, \frac{\frac{r}{r} - \frac{r}{r}}{2} \right) \Rightarrow M \left(\frac{1}{r}, \frac{r}{r} \right) \quad \frac{AM}{AH} = \frac{\frac{\sqrt{2}}{2}}{\frac{r}{r}}$$

$$m_{AH} =$$

|B|

$$m = -\frac{1}{r} \rightarrow ry + m - k = 0$$



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$$\sqrt{\frac{1}{r^2}}$$

$$\frac{|rc|}{\sqrt{a}} = \sqrt{r} \rightarrow C = \pm a$$

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

$$C = a \rightarrow AB = \sqrt{1r0}$$

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

$$C = -a \rightarrow AB = \sqrt{1r0}$$

1

$$\frac{|B|}{\sqrt{\frac{1}{r^2}}} = \frac{B}{\frac{1}{r}} \Rightarrow rB = \sqrt{r0} \Rightarrow B = \sqrt{r0}$$

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$$y = -\frac{1}{r}x + \sqrt{r0} \quad S_D = \left| \frac{m^2 - m + k}{r(m-1)} \right| \sqrt{r} \frac{1}{r} = \frac{a}{r}$$

$$\hookrightarrow m = r, \quad m^2 + r_{m-1} = 0 \Rightarrow \frac{c}{a} = -1$$

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$$2x^1 - 3 = 1 \Rightarrow (1, 0)$$

$$r_{x-1} = -r$$

نقطه نقطه (1, 0)

نقطه نقطه (3, 2)

با استفاده از فرمول

محاسبه

$$(3, 2) \rightarrow 2x^3 + b = 2 \Rightarrow b = -9$$

$$y = 2x - 9$$

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$$y = x + a \xrightarrow{\text{نقطه}} y = -x + b \xrightarrow{\text{نقطه}} -1 \times 1 + b = 2 \Rightarrow b = 3$$

$$y = -x + 3 \xrightarrow{\text{نقطه}} x + a = -x + 3 \Rightarrow 2x = 3 \Rightarrow x = 1.5$$

$$y = 1.5$$

$$(1, 2) \rightarrow (-1, 2) \rightarrow (a, b) \quad pb - a = \frac{12}{r} \times 4 - (-1) = 10$$

1, 0