

المسألة: إيجاد معادلة الخط

$A(1, 1) \quad B(2, 1) \rightarrow \mu = \left(\frac{1+2}{2}, \frac{1+(1)}{2} \right) \Rightarrow \mu(1.5, 1)$

$$-\frac{1}{2} + \frac{1}{2}$$

$m_{AB} = \frac{1-(1)}{2-1} = \frac{0}{1} = 0 \rightarrow m' = \frac{1}{0}$

$$y-1 = \frac{1}{0}(x-1.5) \Rightarrow y = \frac{1}{0}x - \frac{1}{0} + 1$$

$$y = \frac{1}{0}x + \frac{1}{0}$$

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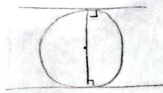
$A(1, 1) \quad B(-1, 1) \quad C(-1, 1) \rightarrow \mu = \left(\frac{1+(-1)}{2}, \frac{1+(1)}{2} \right) \Rightarrow \mu(0, 1)$

$$|BC| = \sqrt{(1-(-1))^2 + (1-1)^2} = \sqrt{4} = 2$$

$$a-1 = \frac{1}{2} \rightarrow a = \frac{3}{2}$$

$$a = \frac{1-1}{-1+1} = \frac{0}{0} \rightarrow y-1 = \frac{0}{0}(x-0) \Rightarrow y = \frac{0}{0}x + \frac{0}{0} + 1$$

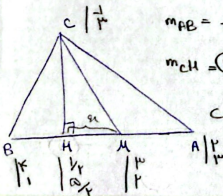
$$y = \frac{0}{0}x + \frac{0}{0} + 1$$



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

$$a = \frac{1-1}{-1+1} = \frac{0}{0} \rightarrow y-1 = \frac{0}{0}(x-0) \Rightarrow y = \frac{0}{0}x + \frac{0}{0} + 1$$

$$y = \frac{0}{0}x + \frac{0}{0} + 1$$



$m_{AB} = \frac{1-1}{1-1} = \frac{0}{0} = -1$

$$m_{CH} = 1 \rightarrow y-1 = 1(x-1) \Rightarrow y = x$$

$$|HM| = \sqrt{(1-\frac{1}{2})^2 + (1-\frac{1}{2})^2} = \sqrt{\frac{1}{4} + \frac{1}{4}} = \sqrt{\frac{1}{2}} = \frac{1}{\sqrt{2}}$$

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$(1-m)y = (m+1)x + 1 \rightarrow m' = m+1$

$$m' = \frac{m+1}{m-m}$$

$m_1 \times m_2 = 1 \rightarrow \left(-\frac{m-m}{m-m} \right) \times \left(\frac{m+1}{m-m} \right) = -1 \Rightarrow \frac{m^2 + m - 1}{-m^2 + 1 + m - 1} = 1$

$$m^2 + m - 1 = -m^2 + 1 + m - 1 \rightarrow 2m^2 - 1 = 0 \rightarrow \Delta < 0 \rightarrow m \text{ حقيقي}$$

$\begin{cases} x+y=1 \\ y=x-1 \end{cases} \rightarrow \begin{cases} x=1 \\ y=1 \end{cases} \rightarrow (1,1)$
 $\begin{cases} y=x-1 \\ x+y=1 \end{cases} \rightarrow \begin{cases} x=\frac{1}{2} \\ y=\frac{1}{2} \end{cases} \rightarrow (\frac{1}{2}, \frac{1}{2})$
 $\begin{cases} x+y=1 \\ x+y=1 \end{cases} \rightarrow \begin{cases} x=1 \\ y=-1 \end{cases} \rightarrow (1,-1)$

$AM = \sqrt{(\frac{1}{2}-1)^2 + (\frac{1}{2}-1)^2} = \frac{\sqrt{2}}{2}$
 $AN = \sqrt{(1-1)^2 + (1-1)^2} = 0$

$AM = \sqrt{(\frac{1}{2}-1)^2 + (\frac{1}{2}-1)^2} = \frac{\sqrt{2}}{2}$
 $AN = \sqrt{(1-1)^2 + (1-1)^2} = 0$

$y = -\frac{1}{2}x + b \Rightarrow \frac{1}{2}x + y - b = 0$
 $A(0, b) \quad B(2b, 0)$

$|AB| = \frac{|0+0-b|}{\sqrt{\frac{1}{4}+1}} = \frac{|b|}{\sqrt{\frac{5}{4}}} = \frac{|b|}{\frac{\sqrt{5}}{2}} = \frac{2|b|}{\sqrt{5}} = \frac{2}{\sqrt{5}} \Rightarrow b = \pm \sqrt{5}$

$|AB| = \sqrt{(2b-0)^2 + (0-b)^2} = \sqrt{4b^2 + b^2} = \sqrt{5b^2} = |b|\sqrt{5} \rightarrow b = \pm \sqrt{5}$

$y = mx + r \Rightarrow y = \frac{r}{m}x + r \Rightarrow x = -\frac{r}{m}$
 $y = mx + r \Rightarrow y = (1-m)x + r \Rightarrow x = \frac{-r}{1-m}$

$m = -1 \quad m = -\frac{1}{\sqrt{2}} \quad m = -\frac{1}{\sqrt{2}} \Rightarrow r(1-\sqrt{2})(-1+\sqrt{2}) = -r$

$y = r(x-1)$
 $x=0 \rightarrow y = r(0)-r = -r \rightarrow A(0, -r)$
 $x=1 \rightarrow y = r(1)-r = 0 \rightarrow B(1, 0)$

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

$y = x + a$
 $A(1, r)$

$d = \frac{|1-r+a|}{\sqrt{1+1}} = \frac{r}{\sqrt{2}}$
 $1+rd = a \rightarrow 1+r\sqrt{2} = a$
 $r+rd = b \rightarrow r+\sqrt{2}r = b$