

$$B(2,1) \quad A(5,-5)$$

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لایه جاری

①

$$M\left(\frac{x+2}{4}, \frac{y+1}{4}\right) \sim M(3,1)$$

$$m_{AB} = \frac{1-(-5)}{2-5} = \frac{6}{-3} = -2 \rightarrow m = \frac{1}{m} \rightarrow m = -\frac{1}{2} \rightarrow y-1 = -\frac{1}{2}(x-3)$$

AH, BC

$$ABC \leftarrow C(-1,2), B(-5,1), A(3,1)$$

②

$$|BC| = \sqrt{(-1+5)^2 + (2-1)^2} = \Delta$$

$$AB, AC \rightarrow S = \frac{1}{4} \left| \begin{vmatrix} -5 & 1 \\ -1 & 2 \end{vmatrix} \right| = \frac{1}{4} \times 3 = \Delta$$

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$$S = \frac{1}{4} \times BC \times AH \rightarrow AH = 2$$

$$BC - AH = 2$$

$$y = ax + 2 \quad y - x = 3$$

③

$$y - x = 3 \rightarrow y = \frac{1}{4}x + \frac{3}{4} \rightarrow m = \frac{1}{4}$$

$$y = ax + 2 \rightarrow y = \frac{a}{4}x + \frac{1}{4} \rightarrow m = \frac{a}{4}$$

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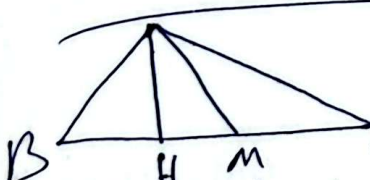
$$\frac{a}{4} = \frac{1}{4} \rightarrow a = 1$$

$$y - x = 3$$

$$d = \frac{|C - C_0|}{\sqrt{A^2 + B^2}} = \frac{|1 - 2(-1)|}{\sqrt{1^2 + 1^2}} = \frac{3}{\sqrt{2}}$$

$$y = ax + 2 \rightarrow y - x = 1$$

$$S = \frac{1}{4} \times BC \times AH = \frac{1}{4} \times \sqrt{16 + 9} \times \frac{3}{\sqrt{2}} = \frac{9\sqrt{5}}{4}$$



$$C(-1,2), B(-5,1), A(3,1)$$

④

$$M\left(\frac{x+2}{4}, \frac{y+1}{4}\right) \sim M(3,1) \rightarrow m = \frac{1-2}{5-2} = -1 \rightarrow y-2 = -1(x-2) \rightarrow y = -x + 4$$

$$H = \frac{ax_0 + by_0 + c}{\sqrt{a^2 + b^2}} = \frac{-1 - 2 - 4}{\sqrt{1 + 1}} = \frac{-7}{\sqrt{2}}$$

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

$$x = -1 - 1 \times \frac{-7}{\sqrt{2}} = -1 + \frac{7}{\sqrt{2}} \rightarrow H(3, 0, 1, 2)$$

$$MH = \sqrt{\left(\frac{7}{\sqrt{2}}\right)^2 + (-1)^2}$$

$$y = 2 - x - \frac{7}{\sqrt{2}} = 2 - \frac{7}{\sqrt{2}} + \frac{7}{\sqrt{2}} = \frac{7}{\sqrt{2}}$$

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

$$MH = \frac{\sqrt{2}}{2}$$

$$- \omega) \quad (m+1)x + (m-1)y + 2z = 0 \quad m, 1, 2, 3$$

$$m_1 s = \frac{m-1}{\Delta-m}$$

$$m_2 s = \frac{m+1}{m-1}$$

$$m_1 \times m_2 s = 1 \rightarrow -\frac{m-1}{\Delta-m} \times \frac{m+1}{m-1} = -1$$

$$\frac{(m-1)(m+1)}{(\Delta-m)(m-1)} = 1$$

$$(m-1)(m+1) = (\Delta-m)(m-1)$$

$$m^2 - 1 = m^2 - \Delta m + m - 1$$

$$\Delta m = 0$$

$$\Delta = 0$$

مستخرجی برای Δ در دسترس

$$\begin{cases} AB: x + y = r \\ AC: y = x - 1 \\ BC: x + y = \epsilon \end{cases}$$

$$\frac{AM}{AH} = ?$$

$$x + y = r \rightarrow \Delta x = \Delta \rightarrow x_A = 1$$

$$y_A = r(1) - 1 = 1 \rightarrow A(1, 1)$$

$$x + y = r$$

$$x + y = \epsilon \rightarrow x = \epsilon - y$$

$$\epsilon - y + y = r \rightarrow \epsilon = r \rightarrow y_B = -1$$

$$x_B = \Delta$$

$$x + (x - 1) = \epsilon \rightarrow 2x = \epsilon + 1 \rightarrow x = \frac{\epsilon + 1}{2}$$

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

$$\begin{aligned} x_C &= \frac{\Delta}{r} \\ y_C &= \frac{\Delta}{r} \end{aligned}$$

$$M = \left(\frac{x_B + x_C}{2}, \frac{y_B + y_C}{2} \right)$$

$$x_M = \frac{\Delta + \frac{\Delta}{r}}{2} = \frac{10 + \Delta}{2} = \frac{r}{2} = \frac{10}{r}$$

$$M = \left(\frac{10}{r}, \frac{r}{r} \right)$$

$$AM = \sqrt{\left(\frac{10}{r} - 1\right)^2 + \left(\frac{r}{r} - 1\right)^2} = \sqrt{\frac{100}{r^2} + \frac{1}{r^2}} = \sqrt{\frac{101}{r^2}} = \frac{\sqrt{101}}{r}$$

$$AH = \frac{|1(1) + 1(1) - \epsilon|}{\sqrt{1^2 + 1^2}} = \frac{2 - \epsilon}{\sqrt{2}}$$

$$\frac{2 - \epsilon}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{2 - \epsilon}{2}$$

$$\frac{AM}{AH} = \frac{\frac{\sqrt{101}}{r}}{\frac{2 - \epsilon}{2}} = \frac{2\sqrt{101}}{r(2 - \epsilon)}$$

$$\boxed{\frac{\omega}{r}}$$

$$\textcircled{1} ms - \frac{1}{r} \rightarrow \sqrt{r_0}$$

$$y = -\frac{1}{r}x + b \rightarrow \frac{1}{r}x + y - b = 0 \rightarrow x + ry - rb = 0$$

$$ds \frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}} \rightarrow \sqrt{r_0} \cdot \frac{|1(0) + r(0) - rb|}{\sqrt{1 + r^2}} = \sqrt{r_0} \cdot \frac{|-rb|}{\sqrt{1 + r^2}} = \frac{r|b|}{\sqrt{1 + r^2}} \sqrt{r_0}$$

$$x \rightarrow 0 \rightarrow y = b \rightarrow A(0, b)$$

$$y \rightarrow 0 \rightarrow 0 = -\frac{1}{r}x + b \rightarrow x = rb \rightarrow B(r, 0)$$

$$\frac{rb}{\sqrt{1+r^2}} \sqrt{r_0} = \frac{r|b|}{\sqrt{1+r^2}} \sqrt{r_0}$$

$$|AB| = \sqrt{(1-0)^2 + (0-b)^2} = \sqrt{1+b^2} = \sqrt{1+r^2} \sqrt{r_0} = \boxed{AB \cdot \sqrt{r_0}}$$

$$\textcircled{2} my - \frac{1}{r}x = m \quad y + mx = x + r \rightarrow y = (1-m)x + r \quad \text{is } \frac{\Delta}{r}$$

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$$0 = (1-m)x + r \Rightarrow x = \frac{-r}{1-m}$$

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

$$usb \quad |x_1 - x_2| = \left| -\frac{m}{r} - \frac{-r}{1-m} \right| = \frac{\Delta}{r} \rightarrow \left| \frac{m^2 - m + r}{r(1-m)} \right| = \frac{\Delta}{r}$$

$$\rightarrow \frac{m^2 - m + r}{r(1-m)} = \frac{\Delta}{r} \rightarrow m^2 - m + r = \Delta(1-m) \rightarrow \boxed{m^2 - r \pm \sqrt{\Delta}}$$

$$\rightarrow \frac{m^2 - m + r}{r(1-m)} = \frac{\Delta}{r} \rightarrow m^2 - m + r = \Delta + \Delta m \rightarrow m^2 - m + r = \Delta + \Delta m$$

$$m_1 \times m_2 \times m_3 = (-1)(r) = -r$$

$$(m-r)^2 = m^2 - 2mr + r^2$$

DATE: $9/12/20$ $x_1 = x_2 = x_3 = x_4$

SUBJECT:

(9) $(y_1, y_2, y_3, y_4) = (x_1, x_2, x_3, x_4)$ $M(1, -1)$ $y_1 = x_1 - x_2$

$y_1 = x_1 - x_2$

$y_1 = x_1 - x_2$ $x_1 = x_2$

$-x_1 = x_2 - x_1$ $x_2 = x_1$

$-x_1 = x_2 - x_1$ $x_2 = x_1$

$\rightarrow (y_1, x_1 - y_1)$

(10) $A(1, 2) \rightarrow y_1 = x_1 + 2$ $A'(a, b)$ $2b = a$

$y_1 = x_1 + 2 \rightarrow x_1 = y_1 - 2$

$A = 1$ $B = -1$ $C = 2$

$Ax + By + C = 1(1) + (-1)(2) + 2 = 1$

$a' + b' = 1 + 2 = 3$

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

$y' = 2 - \frac{x(-1)(2)}{1} = 2 - (-2) = 4$

$a = -1$ $b = 4$

$2b = a \rightarrow 2(4) = (-1) \rightarrow (5, 1, 1)$

$A'(-1, 4)$