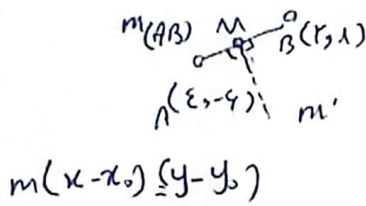


سؤال (1)

$$A(\varepsilon, -6) \quad B(2, 1) \Rightarrow x_M = \frac{\varepsilon+2}{2} \quad y_M = \frac{-6+1}{2} = -\frac{5}{2} \quad M(1, 1)$$



$$m(x - x_0) = (y - y_0)$$

$$m(AB) \times m' = -1 \Rightarrow m(AB) = \frac{\Delta y}{\Delta x} = \frac{1 - (-6)}{2 - \varepsilon} = \frac{1 \varepsilon}{2 - \varepsilon} = -\frac{1}{\varepsilon}$$

$$\Rightarrow m' = \frac{1}{\varepsilon}$$

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

سؤال (2)

$$C(-1, 3) \quad B(-\varepsilon, 1) \quad A(1, 1)$$

$$BC = \sqrt{(x_B - x_C)^2 + (y_B - y_C)^2} = \sqrt{(-\varepsilon - (-1))^2 + (1 - 3)^2} = \sqrt{\varepsilon^2 + 4} = \sqrt{2\varepsilon} = \omega$$

$$m_{BC} = \frac{\Delta y}{\Delta x} = \frac{1 - 3}{-\varepsilon - (-1)} = \frac{-2}{-\varepsilon + 1} = \frac{2}{\varepsilon - 1} \Rightarrow (x - (-1))\left(\frac{2}{\varepsilon - 1}\right) = (y - 3) \Rightarrow \frac{2}{\varepsilon - 1}x - \frac{2}{\varepsilon - 1} + \frac{3}{\varepsilon - 1} = y$$

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

$$d_{BC} = \frac{|-\frac{2}{\varepsilon - 1}x + \frac{1}{\varepsilon - 1} - y|}{\sqrt{\left(\frac{2}{\varepsilon - 1}\right)^2 + 1}} = \frac{|-\frac{2}{\varepsilon - 1}x + \frac{1}{\varepsilon - 1} - y|}{\sqrt{\frac{4}{(\varepsilon - 1)^2} + 1}} = \frac{|-\frac{2}{\varepsilon - 1}x + \frac{1}{\varepsilon - 1} - y|}{\frac{\omega}{\varepsilon - 1}} = \frac{|\frac{-2x + 1 - y(\varepsilon - 1)}{\varepsilon - 1}|}{\frac{\omega}{\varepsilon - 1}} = \frac{|-2x + 1 - y(\varepsilon - 1)|}{\omega}$$

$$kx + by + c = 0 \Rightarrow kx + by + c = 0$$

$$kx + by + c = 0 \Rightarrow kx + by + c = 0$$

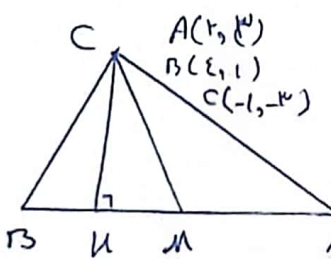
$$d = \frac{|c - c'|}{\sqrt{a^2 + b^2}}$$

سؤال (3)

$$d = \frac{|-1 - (-2)|}{\sqrt{1^2 + (-2)^2}} = \frac{1}{\sqrt{5}} = \frac{\omega}{\sqrt{5}\omega} = \frac{\omega}{\sqrt{5}}$$

$$\Rightarrow kr = \frac{\sqrt{\omega}}{\sqrt{5}} \Rightarrow r = \frac{\sqrt{\omega}}{\sqrt{5}}$$

$$S = r^2 \pi = \left(\frac{\sqrt{\omega}}{\sqrt{5}}\right)^2 \pi = \frac{\omega}{5} \pi$$



$$x_M = \frac{x_A + x_B}{2} = \frac{1 + (-1)}{2} = 0 \quad y_M = \frac{y_A + y_B}{2} = \frac{1 + 3}{2} = 2 \quad M(0, 2)$$

$$d_{CM} = \sqrt{(x_M - x_C)^2 + (y_M - y_C)^2} = \sqrt{(0 - (-1))^2 + (2 - 3)^2} = \sqrt{1 + 1} = \sqrt{2}$$

$$m_{AB} = \frac{\Delta y}{\Delta x} = \frac{1 - 3}{1 - (-1)} = \frac{-2}{2} = -1$$

$$(y - y_0) = m(x - x_0) \Rightarrow (y - 1) = -1(x - \varepsilon) \Rightarrow y - 1 = -x + \varepsilon \Rightarrow y = -x + \varepsilon + 1$$

$$d_{AB} = \frac{|a x_0 + b y_0 + c|}{\sqrt{a^2 + b^2}} = \frac{|-(-1) + 0 - \varepsilon + 1|}{\sqrt{1^2 + 1^2}} = \frac{1}{\sqrt{2}}$$

$$\left(\frac{1}{\sqrt{2}}\right)^2 + \mu^2 = (\sqrt{2})^2 \Rightarrow \frac{1}{2} + \mu^2 = 2 \Rightarrow \mu^2 = \frac{3}{2} \Rightarrow \mu = \frac{\sqrt{6}}{2}$$

$$(m+1)x - (r_m - \varepsilon)y + 1 = 0 \quad (r_m - r)x + (a - m)y - V = 0$$

$$m = \frac{m+1}{r_m - r}$$

$$m' = \frac{r_m - r}{-a + m}$$

$$m \times m' = -1$$

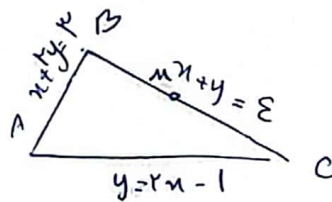
$$\frac{m+1}{r_m - r} \times \frac{r_m - r}{-a + m} = -1 \quad (m+1)(r_m - r) = (r_m - \varepsilon)(m+a)$$

$$r_m^2 + m - r = -r_m^2 + r_m - r$$

$$a m^2 - a m + = 0$$

$$\Delta \rightarrow \Delta < 0 \quad \text{مميزاته سلبية}$$

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



$$\begin{cases} y = rx - 1 \\ x + y = \varepsilon \end{cases} \Rightarrow x + (rx - 1) = \varepsilon \quad rx - 1 = \varepsilon \quad x = \frac{\varepsilon}{r} \Rightarrow \frac{\varepsilon}{r} + y = \frac{1}{r} \Rightarrow y = \frac{V}{r}$$

$$\begin{cases} x + y = \varepsilon \\ x + ry = r \end{cases} \Rightarrow r - y + ry = r \Rightarrow y = -1 \Rightarrow x - 1 = \varepsilon \Rightarrow x = a \quad B(0, -1) \\ A(1, 1)$$

$$\begin{cases} x + ry = r \\ y = rx - 1 \end{cases} \Rightarrow x + r(rx - 1) = r \Rightarrow x + \varepsilon x - r = r \Rightarrow \omega x = a \quad y = r(1) - 1 = 1 \\ x = 1 \quad y = 1$$

$$x_M = \frac{x_B + x_C}{2} = \frac{\frac{\varepsilon}{r} + \frac{a}{r}}{2} = \frac{r_0}{2xr} = \frac{1}{r} \quad y_M = \frac{y_C + y_B}{2} = \frac{\frac{1}{r} + \frac{V}{r}}{2} = \frac{r}{2xr} = \frac{r}{2} \quad M(\frac{1}{r}, \frac{r}{2})$$

$$AM = \sqrt{(x_A - x_M)^2 + (y_A - y_M)^2} = \sqrt{(1 - \frac{1}{r})^2 + (1 - \frac{r}{2})^2} = \sqrt{(\frac{V}{r})^2 + (\frac{1}{r})^2} = \sqrt{\frac{\omega^2}{r}} = \frac{\omega\sqrt{r}}{r}$$

$$\Delta = \frac{|am_0 + by_0 + c|}{\sqrt{a^2 + b^2}} = \frac{|1(1) + (1) - r|}{\sqrt{1^2 + 1^2}} = \frac{|r - r|}{\sqrt{2}} = \frac{r}{\sqrt{r}} = \sqrt{r}$$

$$\frac{AM}{\Delta} = \frac{\frac{\omega\sqrt{r}}{r}}{\sqrt{r}} = \frac{\omega}{r}$$

$$m = -\frac{1}{r} \quad y = ax + b = 0 \quad a = -\frac{1}{r} \Rightarrow y + \frac{1}{r}x + b$$

$$d = \left| \frac{ax_0 + by_0 + c}{\sqrt{a^2 + b^2}} \right| = \frac{|a(x_0) + b(y_0) + c|}{\sqrt{\left(\frac{1}{r}\right)^2 + (1)^2}} = \frac{|c|}{\sqrt{\frac{1}{r^2} + 1}} = \sqrt{r^2} \Rightarrow \frac{|c|}{\frac{\sqrt{r^2 + 1}}{r}} = r\sqrt{r^2 + 1} \Rightarrow |c| = \pm \frac{r^2}{\sqrt{r^2 + 1}}$$

$$\Rightarrow \int C = a \Rightarrow y + \frac{1}{r}x + a = 0 \quad y = 0 \quad x = -1$$

$$\left\{ \begin{array}{l} C = -a \Rightarrow y + \frac{1}{r} - a = 0 \Rightarrow x = 1 \\ C = a \Rightarrow y + \frac{1}{r} + a = 0 \Rightarrow x = -1 \end{array} \right. \quad |x_1 - x_2| = |1 - (-1)| = 2$$

(۸ سوال)

$$m y_1 - r x_1 = r m$$

$$y_1 + m x_1 = x_1 + r$$

$$y_1 = y_2$$

$$y_1 = \frac{r}{m} x_1 + r$$

$$y_1 = x_1(1-m) + r$$

$$\Rightarrow \frac{r}{m} (x_1) + r = (x_1)(1-m) + r$$

$$\Rightarrow \frac{r}{m} (x_1) = (x_1)(1-m) \Rightarrow x_1 = 0 \quad m y = r m \Rightarrow y = r \quad h = 2 \text{ متر ارتفاع}$$

$$\begin{aligned} y_1 &= y_2 \\ \Rightarrow y &= x(1-m) + r \Rightarrow x = \frac{r}{m-1} \\ \Rightarrow y &= y \\ \Rightarrow y &= r x - r \quad x + x' = r \end{aligned}$$

$$\frac{y+y'}{2} = -r \quad y+y' = -2 \Rightarrow y = y' - 2$$

$$(-y' - 2) = r(\varepsilon - x') - r \Rightarrow -y' - 2 = 1 - r x' - r \quad y' = r x' - r + 2 = 1$$

$$y' = r x' - 1$$

(۱۰ سوال)

$$A(1, 2)$$

$$y_1 = x + 1$$

$$\begin{aligned} A'(x_1, y_1) & \quad y_1 = x + 1 \\ A(1, 2) & \quad m' = \frac{y_1 - y_2}{x_1 - x_2} = \frac{1 - 2}{1 - 1} = \frac{-1}{0} \end{aligned}$$

$$(y_1 - y_2) = m(x_1 - x_2) \Rightarrow y_1 - 2 = -1(x_1 - 1) \Rightarrow y_1 = -x_1 + 3$$

$$\begin{aligned} y_1 &= y_2 \\ \Rightarrow -x_1 + 3 &= x_1 + 1 \Rightarrow 2x_1 = 2 \Rightarrow x_1 = 1 \\ y_1 &= y_2 \\ \Rightarrow x_1 + 1 &= x_1 + 1 \Rightarrow y_1 = 2 \end{aligned}$$

$$a = 2(-1) - 1 = -2 - 1 = -3 \Rightarrow 2b - a = 2(6) - (-3) = 15$$

$$b = 2(4) - 2 = 8 - 2 = 6$$