

۲۰. عالرفونستر

$$m = \frac{\Delta x}{\Delta y} = \frac{m-K}{\varepsilon - (-2)} = \frac{m-K}{4} = -\frac{1}{4} \Rightarrow m-K = -1 \Rightarrow |m-K| = 1 \Rightarrow \Delta y$$

$$AB = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{4+4} = 2\sqrt{2} \Rightarrow S = 4\sqrt{2} \checkmark$$

$$AB = \sqrt{(A_x)^2 + (\Delta y)^2} = \sqrt{\varepsilon^2 + 4} = 2 \checkmark \quad m_{AB} = m_{CD} = -\frac{\varepsilon}{\varepsilon} = -1 \Rightarrow -1-2x = -\varepsilon \quad (2) \quad (2)$$

$$2 = \frac{\varepsilon}{4} \Rightarrow C\left(\frac{\varepsilon}{2}, y\right) \quad D\left(-\frac{\varepsilon}{4}, y+3\right)$$

$$m_{BC} \times m_{CD} = -1 \Rightarrow m_{BC} = \frac{\varepsilon}{4} = \frac{y-1}{-\frac{\varepsilon}{4}} \Rightarrow y-1 = -2 \Rightarrow y = -1$$

$$\Rightarrow C\left(\frac{\varepsilon}{4}, -1\right), D\left(-\frac{\varepsilon}{4}, 2\right) \quad BC = \sqrt{\left(\frac{\varepsilon}{4}\right)^2 + 3^2} = \frac{5}{4} \checkmark$$

$$\Rightarrow \text{مساحت} = 2 \times \left(\frac{5}{4} \times 4\right) = 10 \checkmark$$

$$y = \left(\frac{-2m}{m^2-1}\right)x + \frac{\varepsilon}{m^2-1} \quad \left. \begin{array}{l} -2m = \sqrt{3} \Rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \\ |m_2 - m_1| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{\varepsilon^2 - 4}}{\sqrt{3}} = \frac{\varepsilon}{\sqrt{3}} = \frac{\varepsilon\sqrt{3}}{3} \checkmark \end{array} \right\}$$

$$a = \tan \alpha = \sqrt{3} \Rightarrow \alpha = 60^\circ$$

$$BC: y = 2x - \varepsilon \Rightarrow y - 2x + \varepsilon = 0$$

$$m = \frac{\Delta y}{\Delta x} = \frac{11-\varepsilon}{\sqrt{3}-\varepsilon} = 2 \quad y = 2x + b \Rightarrow b = -\varepsilon$$

$$AH = \frac{|9 - 2 + \varepsilon|}{\sqrt{1^2 + (-2)^2}} = 2\sqrt{2} \checkmark$$

$$AB = BC \Rightarrow -2x + \varepsilon = \frac{\varepsilon}{4} \Rightarrow -2x = \frac{\varepsilon}{4} - \varepsilon \Rightarrow -2x = -\frac{3\varepsilon}{4} \Rightarrow x = \frac{3\varepsilon}{8} \Rightarrow y = -1$$

$$g = -2x + \varepsilon$$

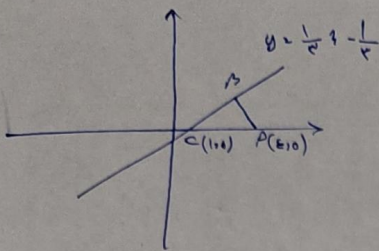
$$BH = \frac{|\varepsilon - 9 - 14|}{\sqrt{\varepsilon^2 + (-4)^2}} = \frac{23}{\Delta} = 4, \varepsilon \checkmark$$

$$\frac{x}{-\frac{\varepsilon}{4}} + \frac{y}{-4} = 1 \Rightarrow -4x - \frac{\varepsilon}{4}y = 4 \Rightarrow -4x = 4 + \frac{\varepsilon}{4}y \Rightarrow x = -1 - \frac{\varepsilon}{16}y \Rightarrow y = -\frac{4}{\varepsilon} \Rightarrow y = -\frac{4}{\varepsilon}$$

$$\Rightarrow \text{مساحت} = \frac{\varepsilon}{4} \times 4 \checkmark$$

$$\left. \begin{array}{l} d_1: y = ax + 1 \\ d_2: y = \frac{1}{a}x + \frac{a-1}{a} \end{array} \right\} \Rightarrow a > \frac{1}{a} \Rightarrow a^2 > 1 \Rightarrow a > 1 \quad \left. \begin{array}{l} a=1 \rightarrow d_1: y=x+1, d_2: y=x \\ a=-1 \rightarrow d_1: y=-x+1, d_2: y=-x-1 \end{array} \right\}$$

$$\left. \begin{array}{l} d_1: y = x+1 \\ d_2: y = x-1 \end{array} \right\} \quad \frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{|1-0|}{\sqrt{1}} = \frac{\sqrt{2}}{2} \quad \Rightarrow \sqrt{2} - \frac{1}{\sqrt{2}} = \frac{\varepsilon}{\sqrt{2}} \Rightarrow \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{\sqrt{2}} = 1, \varepsilon \checkmark$$



$$d_1: x - 2y + 1 = 0 \Rightarrow y = \frac{1}{2}x + \frac{1}{2}$$

$$d_2: y = -2x + b \xrightarrow{(0,0)} 0 = -1 + b \Rightarrow b = 1$$

$$\Rightarrow y = -2x + 1$$

$$d_1 = d_2 \Rightarrow \frac{1}{2}x + \frac{1}{2} = -2x + 1 \Rightarrow \frac{5}{2}x = \frac{1}{2} \Rightarrow x = \frac{1}{5}$$

$$\Rightarrow y = 0,4 \Rightarrow B(1/5, 0,4)$$

$$\Rightarrow 0 = \frac{1}{2}x - \frac{1}{2} \Rightarrow x = 1 \Rightarrow C(1,0)$$

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$$\Rightarrow AC = \sqrt{1^2 + 0^2} = 1$$

$$BH = \frac{0,4}{1} = 0,4 \Rightarrow S_{\triangle ABC} = \frac{1}{2} \times 1 \times 0,4 = 0,2$$

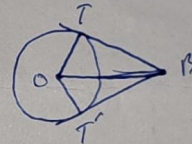
$$m_{AB} = \frac{b-a}{-\frac{1}{2} + \frac{1}{2}} = \frac{b-a}{\frac{1}{2}} \Rightarrow b-a = \frac{\sqrt{5}}{2}$$

$$A(-\frac{1}{2}, a) \Rightarrow AB = \sqrt{\Delta x^2 + \Delta y^2} = \sqrt{(\frac{1}{2})^2 + (\frac{\sqrt{5}}{2})^2} = \frac{\sqrt{6}}{2} = \frac{1}{\sqrt{2}} \Rightarrow \frac{1}{\sqrt{2}} = \frac{\sqrt{5}}{2}$$

$$B(-\frac{1}{2}, b)$$

$$m_{OT} = \frac{0 - (-\epsilon)}{-(-\epsilon)} = \frac{\epsilon}{\epsilon} = 1 \quad \left\{ \quad m_{OT'} = -\frac{\epsilon}{\epsilon} = -1 \right.$$

$$m_{OT} \times m_{OT'} = -1$$



$$r = OT = OT' = \sqrt{\epsilon^2 + \epsilon^2} = \epsilon \Rightarrow m_{OT'} = -\frac{\epsilon}{\epsilon} = -1 \Rightarrow OA: y = -\frac{\epsilon}{\epsilon}x + b \xrightarrow{(0,0)} y = -\frac{\epsilon}{\epsilon}x$$

$$\Rightarrow T'(-\epsilon, \epsilon)$$

$$OT' = \sqrt{\epsilon^2 + \frac{\epsilon^2}{4}} = \sqrt{\frac{5\epsilon^2}{4}} = \frac{\sqrt{5}}{2}\epsilon = \epsilon \Rightarrow \epsilon = -\epsilon \Rightarrow T'(-\epsilon, \epsilon)$$

$$\Rightarrow 2T + 3T' = 3O + 3B \Rightarrow 2B = -V$$

$$y_T + y_{T'} = y_O + y_B \Rightarrow y_B = -1$$

$$\Rightarrow 2B \times y_B = -V$$