

$$A(-2, k) \quad B(4, m) \rightarrow m = \frac{m-k}{4} = -\frac{1}{2} \rightarrow m-k = -3$$

$$\rightarrow |AB| = \sqrt{(m-k)^2 + (4-(-2))^2} = \sqrt{9+36} = \sqrt{45}$$

$$\rightarrow S = \sqrt{45} \times \sqrt{45} = 45$$

D $A(-1, 4) \quad B(3, 1) \quad C(1, y) \quad D(-1, y+3)$

$$m_{AB} = m_{CD} \rightarrow \frac{4-1}{-1-3} = \frac{y+3-y}{-1-1-1} \rightarrow -\frac{3}{4} = \frac{3}{-3-1}$$

$$\rightarrow x = \frac{3}{4} \rightarrow AB \perp BC \rightarrow m_{BC} = \frac{4}{3} = \frac{y-1}{\frac{3}{4}-3} \rightarrow 3y-3=12 \rightarrow y=5$$

$$\rightarrow |CB| = \sqrt{(1-3)^2 + 1^2} = \sqrt{4+1} = \sqrt{5}$$

$$|AB| = \sqrt{9+16} = 5$$

$$\rightarrow P = 2(5 + \sqrt{5}) = 10 + 2\sqrt{5}$$

$$2mx + (m^2-1)y = 2 \rightarrow \tan 45^\circ = 1 \rightarrow m=1 \rightarrow \frac{-2m}{m^2-1} = 1$$

$$\rightarrow \sqrt{1}m^2 + 2m - \sqrt{1} = 0 \rightarrow \begin{cases} m = \frac{1}{\sqrt{1}} \\ m = -\frac{2}{\sqrt{1}} \end{cases} \rightarrow \frac{1}{\sqrt{1}} - (-\frac{2}{\sqrt{1}}) = \frac{3}{\sqrt{1}}$$

$$\frac{\frac{1}{\sqrt{1}}}{|a|} = \frac{\sqrt{1+12}}{\sqrt{1}} = \frac{2}{\sqrt{1}}$$

$$A(1, 9) \quad B(3, 3) \quad C(5, 1) \rightarrow BC: y = 2x - 3$$

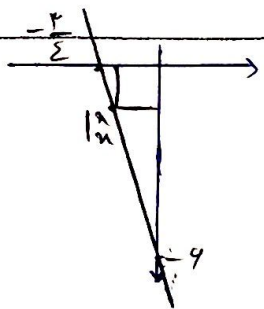
$$\rightarrow |AH| = \frac{|9-2+3|}{\sqrt{1+4}} = \frac{10}{\sqrt{5}} = 2\sqrt{5}$$

$$\begin{cases} AB: y = -x + 6 \\ BC: y = \frac{1}{2}x - \frac{3}{2} \end{cases} \rightarrow -x + 6 = \frac{1}{2}x - \frac{3}{2} \rightarrow x = 3 \rightarrow y = 3$$

$$AC: 2y - 2x - 14 = 0$$

$$\rightarrow |BH| = \frac{|2-9-14|}{\sqrt{4+1}} = \frac{19}{\sqrt{5}} = \frac{19\sqrt{5}}{5}$$

AC و BH



$$m = \frac{-4}{\frac{r}{2}} = -1 \rightarrow y = -1x - 4$$

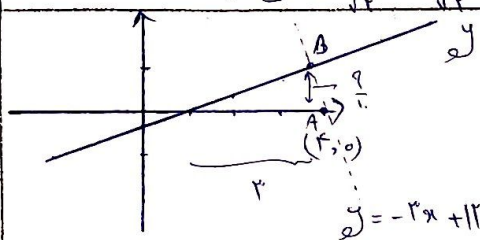
$$\rightarrow x = -1x - 4 \rightarrow 2x = -4 \rightarrow x = -\frac{r}{2}$$

$$\rightarrow \frac{r\sqrt{2}}{2}$$

$$\left. \begin{array}{l} y - ax = 1 \rightarrow m = a \\ ay - x = a - 1 \rightarrow m = \frac{1}{a} \end{array} \right\} \rightarrow a = \frac{1}{a} \rightarrow a = \pm 1 \quad (1, 1) \quad (a=1)$$

$$\left\{ \begin{array}{l} y = x + 1 \\ y = x \end{array} \right. \rightarrow \text{مساحت} = \frac{|1-0|}{\sqrt{1^2+1^2}} = \frac{1}{\sqrt{2}} \rightarrow \sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + x^2} = \delta \rightarrow x^2 = \frac{\varepsilon^2}{2} \rightarrow x = \frac{\sqrt{2}}{2}$$

$$\rightarrow S = \frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{2}} = \frac{1}{2}$$



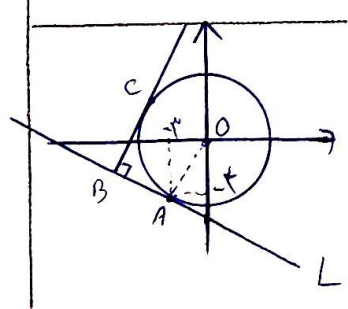
$$y = \frac{x}{r} - \frac{1}{r} \rightarrow \frac{x}{r} - \frac{1}{r} = -rx + 1r \rightarrow x = \frac{r^2}{1}$$

$$\rightarrow y = \frac{r^2}{r} = \frac{r}{1}$$

$$\rightarrow S = r \times \frac{r}{1} \times \frac{1}{r} = \frac{r^2}{2}$$

$$A\left(-\frac{1}{r}, b\right) B\left(-\frac{1}{r}, a\right) \quad m = \frac{b-a}{\frac{1}{r}} = \sqrt{r} \rightarrow b-a = \frac{\sqrt{r}}{r}$$

$$\rightarrow |AB| = \sqrt{(b-a)^2 + \left(-\frac{1}{r}\right)^2} = \sqrt{\frac{r}{r^4} + \frac{1}{r^4}} = \sqrt{\frac{\varepsilon}{r^4}} = \frac{r}{4} \rightarrow \frac{r\sqrt{2}}{4} = \frac{\sqrt{2}}{r}$$



$$m_{OA} = \frac{r}{r} \rightarrow m_L = -\frac{r}{\varepsilon} \rightarrow L: y = -\frac{r}{\varepsilon}x - \frac{r\delta}{\varepsilon}$$

$$\rightarrow m_{BC} = \frac{r}{r} \rightarrow BC: y = \frac{\varepsilon}{r}x + b$$

نقطه B از شرایطات
برابر ارتفاع دایره است

$$\rightarrow \delta = \frac{|-b|}{\sqrt{1 + \left(\frac{\varepsilon}{r}\right)^2}} \rightarrow \delta = \frac{|b|}{\sqrt{\frac{r^2 + \varepsilon^2}{r^2}}} \rightarrow b = \frac{r\delta}{r}$$

$$\rightarrow BC = y = \frac{\varepsilon}{r}x + \frac{r\delta}{r} \rightarrow \frac{\varepsilon}{r}x + \frac{r\delta}{r} = -\frac{r}{\varepsilon}x - \frac{r\delta}{\varepsilon} \rightarrow \frac{r\delta}{r}x = \frac{-1r\delta}{r}$$

$$\rightarrow (x = -r) \rightarrow (y = -1) \rightarrow B \begin{vmatrix} -r \\ -1 \end{vmatrix} \rightarrow (-r) \times (-1) = r$$