

لا نهج بر

تقليد ١٧

محمد اسدي جعفر

$$y = -\frac{1}{f}x + b \rightarrow \begin{cases} m = -\frac{1}{f} + b \\ k = 1 + b \end{cases} \rightarrow m - k = -\frac{1}{f} - 1 = \Delta y \quad \Delta x = 1 - (-1) = 2$$

$$AB = \sqrt{\Delta y^2 + \Delta x^2} = \sqrt{(-\frac{1}{f})^2 + 1^2} = \sqrt{\frac{1}{f^2} + 1} = \sqrt{\frac{1 + f^2}{f^2}} = \frac{\sqrt{1 + f^2}}{f} \quad S = \frac{AB^2}{f} = \frac{1 + f^2}{f} = 22/5$$

$$\Delta y_{AB} = \Delta y_{D-C} \Rightarrow 1 - 1 = y + 1 - y \Rightarrow 1 = 1$$

$$\Delta x_{AB} = \Delta x_{D-C} \Rightarrow -1 - 1 = -1 - n - n \Rightarrow -2 = -2n - 1 \Rightarrow n = \frac{1}{2}$$

$$\Rightarrow m_{AB} \cdot m_{BC} = -1 \Rightarrow \frac{1}{-1} \times \frac{y-1}{n-1} = -1 \Rightarrow \frac{y-1}{n-1} = 1 \Rightarrow y-1 = n-1 \Rightarrow y = n$$

$$\Rightarrow y = \frac{1 \times \frac{1}{2}}{1} = \frac{1}{2} \quad AB = \sqrt{(1-1)^2 + (1-1)^2} = 0 \quad BC = \sqrt{(n-1)^2 + (y-1)^2} = \sqrt{(\frac{1}{2}-1)^2 + (\frac{1}{2}-1)^2} = \sqrt{\frac{1}{4} + \frac{1}{4}} = \frac{\sqrt{2}}{2}$$

$$\Rightarrow \text{مساحة} = (\frac{1}{2} + \frac{\sqrt{2}}{2}) \times 1 = 1.5$$

$$\tan 45^\circ = \sqrt{2} \quad y = \frac{-2m}{m^2+1} \times \frac{1}{m^2+1} \Rightarrow \frac{-2m}{m^2+1} = \sqrt{2} \Rightarrow \sqrt{2}m^2 - \sqrt{2} = -2m \Rightarrow \sqrt{2}m^2 + 2m - \sqrt{2} = 0$$

$$\Delta > 0 \rightarrow \text{اختلاف} = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{4 - 4(-\sqrt{2})\sqrt{2}}}{\sqrt{2}} = \frac{\sqrt{4+8}}{\sqrt{2}} = \frac{\sqrt{12}}{\sqrt{2}} = \frac{2\sqrt{3}}{\sqrt{2}} = \sqrt{6}$$

$$m_{BC} = \frac{11-1}{1-1} = \frac{10}{0} \text{ غير معرف} \quad m_{BC} \cdot m_{Ah} = -1 \Rightarrow m_{Ah} = -\frac{1}{f} \xrightarrow{A(1,9)} 9 = -\frac{1}{f} + b \Rightarrow b = \frac{19}{f}$$

$$y = 2n - 1$$

$$y = -\frac{1}{f}x + \frac{19}{f} \Rightarrow 2n - 1 = -\frac{1}{f}x + \frac{19}{f} \Rightarrow 2n - 1 = -n + 19 \Rightarrow 3n = 20 \Rightarrow n = \frac{20}{3} \Rightarrow y = \frac{39}{3} = 13$$

$$\Rightarrow Ah = \sqrt{(9 - \frac{39}{3})^2 + (1 - \frac{20}{3})^2} = \sqrt{(-10)^2 + (-\frac{17}{3})^2} = \sqrt{100 + \frac{289}{9}} = \sqrt{\frac{900 + 289}{9}} = \frac{\sqrt{1189}}{3}$$

$$\left. \begin{aligned} y &= -2m + 1 \\ y &= \frac{2m+1}{f} \end{aligned} \right\} \Rightarrow 2m + 1 = -2m + 1 \Rightarrow 4m = 0 \Rightarrow m = 0 \Rightarrow y = 1 \Rightarrow A(1, 1)$$

$$\left. \begin{aligned} y &= -2m + 1 \\ y &= \frac{2m+1}{f} \end{aligned} \right\} \Rightarrow 2m + 1 = -2m + 1 \Rightarrow 4m = 0 \Rightarrow m = 0 \Rightarrow y = 1 \Rightarrow B(1, 1)$$

$$y = \frac{2m+1}{f}$$

$$\left. \begin{aligned} y &= \frac{2m+1}{f} \\ y &= \frac{2m+1}{f} \end{aligned} \right\} \Rightarrow 2m + 1 = 2m + 1 \Rightarrow 0 = 0 \Rightarrow y = 1 \Rightarrow C(1, 1)$$

$$m_{BH} \times m_{AC} = -1 \Rightarrow m_{BH} = -\frac{1}{f} \xrightarrow{A(1,9)} 9 = -\frac{1}{f} + b \Rightarrow b = \frac{19}{f} \quad y = -\frac{1}{f}x + \frac{19}{f} \quad y = \frac{2m+1}{f} \Rightarrow -\frac{1}{f}x + \frac{19}{f} = \frac{2m+1}{f} \Rightarrow -x + 19 = 2m + 1 \Rightarrow -x = 2m - 18 \Rightarrow x = 18 - 2m$$

$$S = \frac{\frac{5}{4} + 7}{4} = \frac{9}{4} = n^2 + \frac{(\frac{5}{4} - n)n}{4} + \frac{(4-n)n}{4} \Rightarrow 2n^2 + (\frac{5}{4} - n)n + (4-n)n = \frac{9}{4}$$

$$\Rightarrow 2n^2 - n^2 + \frac{5}{4}n - n^2 + 4n = (4 + \frac{5}{4})n = \frac{21}{4}n = \frac{9}{4} \Rightarrow n = \frac{9}{4} \times \frac{4}{21} = \frac{1}{2}$$

$$\text{مساحت} = \sqrt{n^2 + n^2} = \sqrt{2n^2} = \sqrt{2}n = \frac{2\sqrt{2}}{4}$$

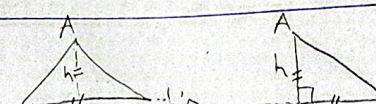
$$y = ax + 1 \Rightarrow \frac{(1, 2)}{2 - a - 1} \Rightarrow a = 1$$

$$\Rightarrow -a = -\frac{1}{a} \Rightarrow a^2 = 1 \Rightarrow a = \pm 1 \Rightarrow \frac{|a + 1 - (-1)|}{\sqrt{1 + a^2}} = \frac{|a - 1|}{\sqrt{2}} = \frac{2 - a}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$$y = \frac{n}{a} - a + 1 \Rightarrow \frac{(1, 2)}{2 - \frac{1}{a} - a + 1} \Rightarrow a^2 + 2a - 1 = 0 \Rightarrow a = \frac{-2 \pm \sqrt{4 + 4}}{2} = \frac{-2 \pm 2\sqrt{2}}{2} = -1 \pm \sqrt{2}$$

$$\left(\frac{1}{\sqrt{2}}\right)^2 + k^2 = 5 \Rightarrow \frac{1}{2} + k^2 = 5 \Rightarrow k = \sqrt{2 \times 5} = \frac{\sqrt{10}}{\sqrt{2}} \Rightarrow S = \frac{1}{\sqrt{2}} \times \frac{\sqrt{10}}{\sqrt{2}} = \frac{\sqrt{5}}{2}$$

طول ضلع = $\frac{|1 - 2(0) - 1|}{\sqrt{9 + 1}} = \frac{2}{\sqrt{10}} = h$



$$\Rightarrow S_{\max} = \frac{1}{2} \times h^2 = \frac{1}{2} \times \frac{4}{10} = \frac{2}{10} = \frac{1}{5}$$

نقطه $(\frac{1}{2}, \frac{1}{2})$ مرکز تغییر است. در هر دو نقطه $(\frac{1}{2}, \frac{1}{2})$ و $(\frac{3}{2}, \frac{3}{2})$ محلی قرار می‌گیرد. مساحت در هر دو نقطه یکسان است.

$$m = \frac{b-a}{-\frac{1}{2} + \frac{1}{4}} = \frac{b-a}{-\frac{1}{4}} = 4b - 4a = \sqrt{5} \Rightarrow b - a = \frac{\sqrt{5}}{4}$$

$$\text{فاصله دو نقطه} = \text{ضلع} = n \cdot \sqrt{\left(\frac{\sqrt{5}}{4}\right)^2 + \left(-\frac{1}{4} + \frac{1}{2}\right)^2} = \sqrt{\frac{1}{16} + \left(\frac{1}{4}\right)^2} = \sqrt{\frac{1}{16} + \frac{1}{16}} = \sqrt{\frac{2}{16}} = \frac{\sqrt{2}}{4} = \frac{1}{2\sqrt{2}}$$

$$\Rightarrow \text{مساحت} = \sqrt{n^2 + n^2} = \sqrt{2n^2} = \sqrt{2}n = \frac{\sqrt{2}}{2}$$

$$m = \frac{0 - (-1)}{1 - (-2)} = \frac{1}{3} \Rightarrow m_L = -\frac{3}{1} = -3 \Rightarrow L: m_L \cdot m = -1 \Rightarrow m = \frac{1}{3}$$

$$L: y = \frac{1}{3}x + b \Rightarrow \frac{(1, 2)}{2 = \frac{1}{3} + b} \Rightarrow b = \frac{5}{3} \Rightarrow L: y = \frac{1}{3}x + \frac{5}{3}$$

$$L': y = \frac{3}{1}x + b' \Rightarrow \frac{(1, 2)}{2 = 3 + b'} \Rightarrow b' = -1 \Rightarrow L': y = 3x - 1$$

$$L: y = \frac{1}{3}x + \frac{5}{3} \Rightarrow -\frac{1}{3}x + \frac{5}{3} = \frac{1}{3}x + \frac{5}{3} \Rightarrow -\frac{2}{3}x = 0 \Rightarrow x = 0 \Rightarrow y = \frac{5}{3}$$

$$L': y = 3x - 1 \Rightarrow -\frac{1}{3}x + \frac{5}{3} = 3x - 1 \Rightarrow -\frac{10}{3}x = -\frac{8}{3} \Rightarrow x = \frac{4}{5} \Rightarrow y = \frac{11}{5}$$