

$$m = \frac{dy}{dx} = \frac{k-m}{-2-4} = \frac{k-m}{-6} = \frac{1}{-2} \Rightarrow k-m=3$$

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

$$|AB| = \sqrt{(5-1)^2 + (-1-3)^2} = \sqrt{9+16} = 5$$

$$|CD| = \sqrt{(2x+1)^2 + 9} = 5 \Rightarrow (2x+1)^2 + 9 = 25 \rightarrow 2x+1 = 4 \rightarrow x = \frac{3}{2}, y = -1$$

$$\rightarrow |AD| = \sqrt{(5-2)^2 + (1-8)^2} = \sqrt{9+49} = \sqrt{58} = 2\sqrt{14.5}$$

$$\begin{cases} A: (-1, 4) \\ D: (-2, 8, 2) \end{cases} \Rightarrow P = (5 + 2\sqrt{14.5}) \times 2 = 10$$

$$\text{کسب} = \frac{-2m}{m^2-1} = \sqrt{3} \Rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \rightarrow m = \begin{cases} \frac{-2 + \sqrt{4+12}}{2\sqrt{3}} = \frac{1}{\sqrt{3}} \\ \frac{-2 - \sqrt{16}}{2\sqrt{3}} = -\sqrt{3} \end{cases}$$

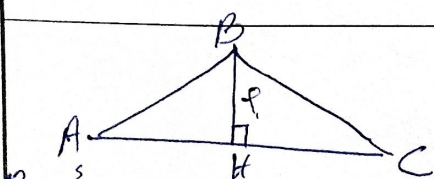
$$\text{اضلاع} = \left| -\sqrt{3} - \frac{1}{\sqrt{3}} \right| = \left| \frac{3\sqrt{3} + 1}{\sqrt{3}} \right| = \left| \frac{4\sqrt{3}}{\sqrt{3}} \right| = 4\sqrt{3}$$

$$m_{BC} = \frac{2-11}{2-5} = 2 \rightarrow m_{AH} = -\frac{1}{2} \xrightarrow{A(1,9)} y = -\frac{1}{2}(1) + b = 9 \Rightarrow b = 9.5$$

$$BC \text{ معادله: } y = 2(x) + b = 2 \rightarrow b = 2 \Rightarrow BC: y = 2x - 2$$

$$H \text{ روی } BC \rightarrow 2x - 2 = -\frac{1}{2}x + 9.5 \Rightarrow x = 8, y = 14$$

$$\Rightarrow |AH| = \sqrt{(8-1)^2 + (14-9)^2} = \sqrt{49+25} = \sqrt{74} = 2\sqrt{18.5}$$



$$AC: 4y - 3x - 14 = 0 \rightarrow m_{BH} = -\frac{4}{3}$$

$$\rightarrow m = \frac{4}{3}$$

$$B(1,8) - 2x + 14 = \frac{4}{3}x - \frac{14}{3} \Rightarrow \begin{cases} x = 3 \\ y = 1 \end{cases}$$

$$BH \text{ معادله: } -\frac{4}{3}x + 8 = y$$

$$AC \text{ معادله: } -\frac{4}{3}x + 8 = \frac{4}{3}x + \frac{14}{3} \Rightarrow \begin{cases} x = 0.375 \\ y = 8.5 \end{cases} \rightarrow BH = \sqrt{(3-0.375)^2 + (8-8.5)^2} = 2.5$$

$$m = \frac{dy}{dx} = \frac{y}{\frac{x}{2}} = \frac{2y}{x} = \lambda \xrightarrow{\text{منبر = نسبت یاب}} m = -\lambda, b = -4$$

$$\rightarrow \text{معادله} = -\lambda x - 4 = y \rightarrow \text{مختصات نقطه رأس مربع} = (x, -\lambda x - 4) \quad (\text{روی رأس})$$

$$\xrightarrow{\text{مربع}} x = -\lambda x - 4 \Rightarrow x = \frac{-4}{\lambda} = \frac{-2}{\frac{\lambda}{2}} \Rightarrow \text{قطر} = \sqrt{2} \quad \left(\frac{2}{\sqrt{2}} \sqrt{2} \right)$$

$$\begin{cases} y - ax = 1 \rightarrow m = a \\ ay - x = a - 1 \rightarrow m = \frac{1}{a} \end{cases} \rightarrow a = \frac{1}{a} \Rightarrow a^2 = 1 \rightarrow a = \pm 1$$

$$\Rightarrow \begin{cases} a = 1 \rightarrow 1 + x = x \Rightarrow x = 1 \rightarrow y = 2 \Rightarrow \text{نقطه} (1, 2) \text{ و } (1, 2) \\ a = -1 \rightarrow -x + 1 = -x + 2 \rightarrow 1 = 2 \text{ غلط} \end{cases}$$

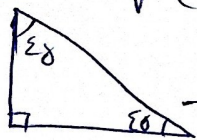
$$\frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{y - x = 1}{y - x = 0} \rightarrow \text{مساحت} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \Rightarrow \left(\frac{\sqrt{2}}{2} \right)^2 + (\text{قطر})^2 = 2 \Rightarrow \text{قطر} = \frac{\sqrt{2}}{2} \nearrow$$

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

$$x - 3y - 1 = 0 \rightarrow \frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}} = \frac{|1 - 0 - 1|}{\sqrt{10}} = \frac{0}{\sqrt{10}} = \frac{3\sqrt{10}}{10}$$

$$m = \frac{b-a}{-\frac{1}{a} + \frac{1}{b}} = \frac{b-a}{\frac{1}{a}} = (b-a) = \sqrt{3} \Rightarrow b-a = \frac{\sqrt{3}}{4}$$

$$\text{اندازه ضلع} = \sqrt{(b-a)^2 + \left(-\frac{1}{a} + \frac{1}{b}\right)^2} = \sqrt{\frac{3}{16} + \frac{1}{16}} = \sqrt{\frac{4}{16}} = \frac{2}{4}$$



$$\rightarrow \text{قطر} = \sqrt{2} \rightarrow \text{قطر مربع} = \frac{2\sqrt{2}}{4}$$

$$\text{مساحت} = \sqrt{(3-0)^2 + (4-0)^2} = \sqrt{25} = 5$$

خط گذرا از

خط L و L' به یکدیگر عمود اند از طرفی L از طریق $(0, 0)$ و $(-3, -4)$ و L' از طریق $(0, 0)$ و $(4, 3)$ می‌گذرد.

$$\begin{aligned} \frac{-4-0}{-3-0} = \frac{4}{3} &\Rightarrow \text{شیب خط } L' = \frac{4}{3} \Rightarrow \begin{cases} \text{معادله} = \frac{4}{3}x - \frac{28}{3} = y \\ \text{معادله} = -\frac{3}{4}x - 4.25 = y \end{cases} \\ \text{نقطه: } (4, 3) & \quad \text{نقطه: } (-3, -4) \end{aligned}$$

$$\rightarrow \text{قطر} = -\frac{3}{4}x - 4.25 = \frac{4}{3}x - \frac{28}{3} \rightarrow x = 1 \rightarrow y = -5$$