

مسئله ۱۰۰ (۱۰۰)

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$$2mx + (m^2 - 1)y = 3$$

$$(m^2 - 1)y = -2mx + 3$$

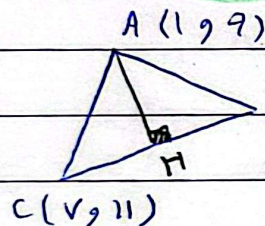
$$y = \left(\frac{-2m}{m^2 - 1} \right)x + \left(\frac{3}{m^2 - 1} \right)$$

$$\tan \alpha = \frac{y}{x} = \tan 40^\circ = \sqrt{3}$$

$$\frac{-2m}{m^2 - 1} = \sqrt{3} \quad \sqrt{3}m^2 - \sqrt{3} = -2m$$

$$\sqrt{3}m^2 + 2m - \sqrt{3} = 0$$

$$\Delta = 16, \quad \left| \frac{2}{\sqrt{3}} \right|$$



$$m_{BC} = \frac{1}{2} = 2 \quad (2)$$

$$y = 2x - 3$$

$$y - 2x + 3 = 0$$

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

$$2\sqrt{5}$$

s.a.m

$$A(-2, k) \rightarrow \frac{y}{x} = -\frac{1}{2} \quad (1)$$

$$B(2, m) \quad S_{ABCO} = ?$$

$$\frac{m - k}{4} = -\frac{1}{4} \quad m - k = -1$$

$$AB = \sqrt{4^2 + (m - k)^2} =$$

$$\sqrt{16 + 1} = \sqrt{17} = 4\sqrt{5} = \text{مساحت}$$

$$S = (4\sqrt{5})^2 = 80$$

$$A(-1, 2) \quad C(2, 2) \quad (2)$$

$$B(2, 1) \quad D(-x - 1, y + 3)$$

$$x - 1 = -x - 1 + 3, \quad x = 1$$

$$AC = BD \quad \leftarrow \text{مقدارهای برابر دارند}$$

$$\sqrt{(x+1)^2 + (y-2)^2} = \sqrt{(x+2)^2 + (y+2)^2}$$

$$(x+1)^2 + (y-2)^2 = (x+2)^2 + (y+2)^2$$

$$x^2 + 2x + 1 + y^2 + 4 - 4y = x^2 + 4x + 4 + y^2 + 4 + 4y$$

$$2x + 5 - 4y = 4x + 8 + 4y \quad y = 1$$

$$AB = \sqrt{9 + \frac{16}{4}} = \sqrt{\frac{41}{4}}$$

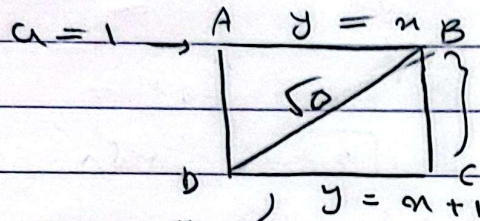
$$BC = \sqrt{\frac{9}{4} + 0} = \frac{3}{2}$$

$$P = 2 \left(\frac{\sqrt{41}}{2} + \frac{3}{2} \right) = \sqrt{41} + 3$$

$$y = ax + 1$$

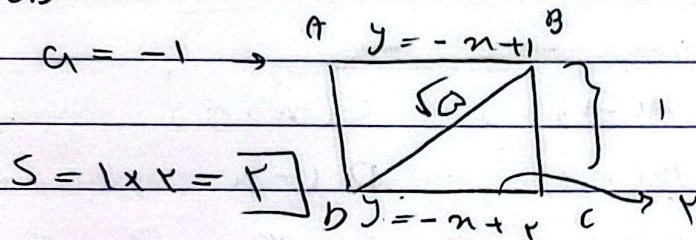
$$y = \left(\frac{1}{a}\right)x + \left(\frac{a-1}{a}\right)$$

$$a = \frac{1}{a} \rightarrow a^2 = 1 \quad a = \pm 1$$



$$CD = 1 \quad y = x + 1$$

$$a = -1 \rightarrow$$



$$S = 1 \times 1 = 1$$

(V)

$$ky - px - 1v = 0$$

$$AB: y = -px + v$$

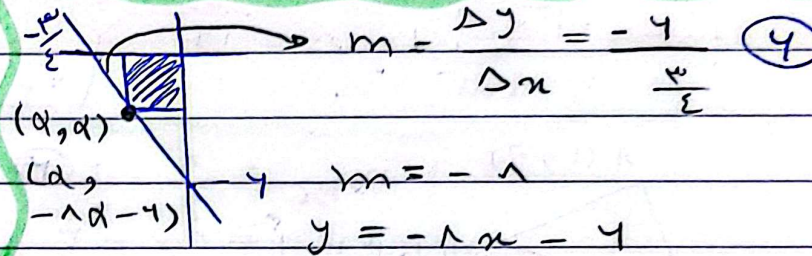
$$AC: y = \frac{p}{2}x + \frac{1v}{2}$$

$$BC: y = \frac{v}{p}x - \frac{1q}{p}$$

$$AB = BC$$

$$-px + v = \frac{v}{p}x - \frac{1q}{p} \rightarrow B\left(\frac{v}{p}, 1\right)$$

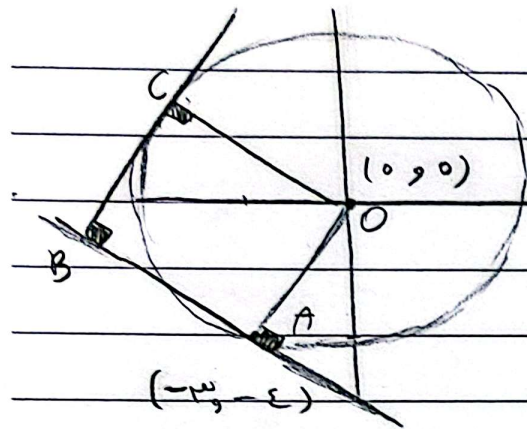
$$BH = AC \quad |B'_{\text{lev}}| = \frac{|k-a-1v|}{\sqrt{1+q}} = \frac{p}{a} = \boxed{p, p}$$



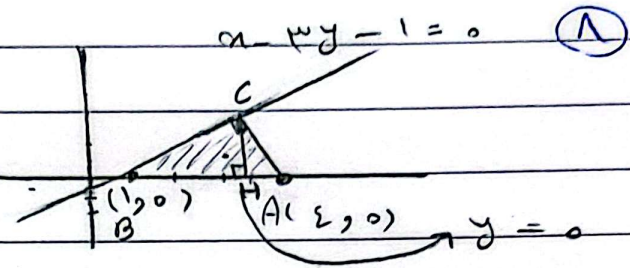
$$a = 1a - 4 \quad 9a = -4$$

$$a = -\frac{4}{9} = -\frac{p}{p} \quad \left(-\frac{p}{p}, -\frac{p}{p}\right)$$

$$\text{مساحة} = \text{ضلع} \times \sqrt{2} = \frac{2\sqrt{2}}{p}$$



(10)



$$x - ry = 1 \rightarrow ry = x - 1$$

$$y = \frac{1}{r} x - \frac{1}{r}$$

$$OA: y = \frac{2}{r} x$$

$$AB: y = -\frac{r}{2} x + b \xrightarrow{(-r, -r)}$$

$$y = -\frac{r}{2} x + \frac{r\omega}{2}$$

$$AB: ry + rx - r\omega = 0$$

$$OA = \text{مسافة} = \frac{|-r\omega|}{\sqrt{r^2 + 4}} = \omega$$

$$BC: y = \frac{r}{r} x + b' \rightarrow ry - rx - rb' = 0 \quad (-\frac{1}{r}, a)$$

$$OC = OA = \text{مسافة} \rightarrow |1 - rb'| = \omega \quad (-\frac{1}{r}, b)$$

$$-rb' < -r\omega \rightarrow b' > \omega$$

$$\left. \begin{array}{l} -\frac{1}{r} > a \\ -\frac{1}{r} > b \end{array} \right\} m = \frac{b-a}{1} = \frac{1}{4}$$

$$r(b-a) = \sqrt{r} \rightarrow b-a = \frac{\sqrt{r}}{4}$$

$$BC: y = \frac{r}{r} x + \frac{r\omega}{r}$$

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

$$y = \sqrt{r}$$

$$\text{مسافة} = \sqrt{\frac{1}{r^2} + (b-a)^2} = \sqrt{\frac{1}{r^2} + \frac{r}{r^2}} = \frac{r}{r}$$

$$\text{مسافة} = \frac{1}{r} \rightarrow \text{نقطه} = \frac{\sqrt{r}}{r}$$

s.a.m

$$xy = -\sqrt{r}$$