

$$m = \frac{-1}{-\frac{1}{\sqrt{2}}} = -1 \Rightarrow y = -1(x - \frac{1}{\sqrt{2}}) \Rightarrow y = -\frac{1}{\sqrt{2}}x \Rightarrow -\frac{1}{\sqrt{2}}x - y = 0$$

$$-1x - y = 0 \Rightarrow |x| = \frac{1}{\sqrt{2}} \quad \text{مقدار} = \frac{\sqrt{2}}{2}$$

$$\frac{|1 - y|}{\sqrt{y^2 + 1}} = \frac{1}{\sqrt{2}}$$

②

$$ay - x = a - 1 \Rightarrow y = \frac{1}{a}x + \frac{a-1}{a} \Rightarrow m_1 = \frac{1}{a}$$

$$y - ax = 1 \Rightarrow y = ax + 1 \Rightarrow m_2 = a \Rightarrow \frac{1}{a} = a \Rightarrow a = \pm 1$$

③

$$a=1 \begin{cases} L_1 = y - x = 0 \\ L_2 = y - x = 1 \end{cases} \rightarrow \frac{|1 - 0|}{\sqrt{1^2 + (-1)^2}} = \frac{1}{\sqrt{2}}$$

$$r = \sqrt{0.10^2 + 0.05^2} = 0.1118$$

$$\sqrt{0.10^2 + (\frac{1}{\sqrt{2}})^2} = 0.1118 \Rightarrow 0.10^2 = \frac{1}{2} \Rightarrow 0.10 = \frac{1}{\sqrt{2}}$$

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

$$a=-1 \begin{cases} L_1 = y + x = 1 \\ L_2 = y + x = 0 \end{cases} \rightarrow \frac{|1 - 0|}{\sqrt{1^2 + 1^2}} = \frac{1}{\sqrt{2}} \quad \text{مساحت} = \frac{1}{2}$$

$$d = \frac{|1 - 1|}{\sqrt{10}} = \frac{0}{\sqrt{10}} \Rightarrow x - 1 = 0 \Rightarrow x = 1$$

$$x = \sqrt{9 - \frac{9}{10}} = \frac{3}{\sqrt{10}} \Rightarrow S = \frac{3}{\sqrt{10}} \times \frac{3}{\sqrt{10}} = \frac{9}{10}$$

④

$$\frac{b-a}{-\frac{1}{x} + \frac{1}{y}} = \sqrt{2} \Rightarrow -\frac{\sqrt{2}}{y} = b - a$$

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

$$\frac{1}{x} = \frac{1}{x} \Rightarrow \frac{1}{x} = \frac{1}{x} \Rightarrow \frac{1}{x} = \frac{1}{x}$$

⑤

$$L: y = \frac{F}{r}u + K$$

$$OA = 0 \quad OL = \frac{F}{a}K = 0 \rightarrow K = -\frac{Fa}{r} \quad \div (1)$$

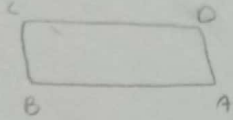
$$\frac{Fa}{1r}u = \frac{-1Va}{1r} \Rightarrow u_B = -V \quad y_B = -1$$



$$\frac{m-k}{k+r} = -\frac{1}{r} \Rightarrow m-k = -r$$

$$\text{طول وتر} = \sqrt{\left(\frac{m-k}{r}\right)^2 + (r)^2} = \sqrt{9+16} = \sqrt{25} = 5$$

$$\text{مساحت} = \frac{1}{2} \times 4 \times 3 = 6$$



$$\begin{aligned} CA_{\text{کوتاه}} &= \left(\frac{-1+x}{r}, \frac{r+y}{r} \right) \\ DB_{\text{کوتاه}} &= \left(\frac{r-x}{r}, \frac{y+r}{r} \right) \end{aligned} \Rightarrow \frac{-1+x}{r} = \frac{r-x}{r} \Rightarrow x = \frac{r}{2}$$

$$y = -1$$

$$\Rightarrow C = \left(\frac{r}{2}, -1 \right), D = \left(-\frac{r}{2}, r \right) \rightarrow BA_{\text{کوتاه}} = \sqrt{14+9} = \sqrt{25} = 5$$

$$CB_{\text{کوتاه}} = \sqrt{\frac{9}{4} + 16} = \sqrt{\frac{73}{4}} = \frac{\sqrt{73}}{2}$$

$$r \times \left(\frac{r}{2} + \frac{r}{2} \right) = 16$$

$$rmx + (mr-1)y = r \Rightarrow (mr-1)y = -rmx + r \Rightarrow y = \frac{-rm}{mr-1}x + \frac{r}{mr-1} \Rightarrow a = \frac{-rm}{mr-1}$$

$$\tan \theta_0 = \sqrt{r} \Rightarrow \frac{-rm}{mr-1} = \sqrt{r} \Rightarrow \sqrt{r}mr + rm - \sqrt{r} = 0 \rightarrow m = \frac{-r \pm \sqrt{r(r+4)}}{r\sqrt{r}} = \frac{-r \pm r}{r\sqrt{r}} \Rightarrow m_1 = \frac{1}{\sqrt{r}}, m_2 = -\sqrt{r}$$

$$m_1 - m_2 = \frac{1}{\sqrt{r}} - (-\sqrt{r}) = \frac{1+r}{\sqrt{r}} = \frac{r}{\sqrt{r}} = \frac{r\sqrt{r}}{r}$$

$$\begin{vmatrix} 1 & r & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix} = 1(1+r+1) - r - r - r = 1-r = -r$$

$$\frac{1}{r} \times r = 1 \rightarrow \text{مساحت} = \frac{\text{مساحت} \times \text{ارتفاع}}{r} \Rightarrow \frac{\sqrt{10} \times \text{ارتفاع}}{r} = 1$$

$$CB_{\text{کوتاه}} = \sqrt{(1-r)^2 + (1-r)^2} = \sqrt{14+r^2} = \sqrt{10}$$

$$B, y+rx = 1, ry-vx = 19 \Rightarrow r(v-rx) - vx = 19 \Rightarrow 1r - 11x = 19 \Rightarrow x = -\frac{19}{11}, y = \frac{14}{11}$$

$$B = \left(-\frac{19}{11}, \frac{14}{11} \right)$$

$$C, ry-vx = 14, ry-vx = 19 \Rightarrow (ry-vx) - (ry-vx) = 14-19 \Rightarrow 11x = -5 \Rightarrow x = -\frac{5}{11}, y = \frac{14}{11}$$

$$C = \left(-\frac{5}{11}, \frac{14}{11} \right)$$

$$A, y+rx = 1, ry-vx = 14 \Rightarrow r(v-rx) - vx = 14 \Rightarrow 11x = -1 \Rightarrow x = -\frac{1}{11}, y = 0$$

$$A = \left(-\frac{1}{11}, 0 \right)$$

$$\begin{cases} -ry - vx = -14 \\ ry - vx = 19 \end{cases} \rightarrow x = \frac{r}{11}, y = 1$$

$$BH = \frac{|14-9-14|}{5} = \frac{14}{5}$$

$$AB_{\text{کوتاه}} = \frac{|1 - r(-\frac{1}{11}) + r(\frac{14}{11}) - 14|}{\sqrt{(-r)^2 + r^2}} = \frac{10}{11} + \frac{14r}{11} - 14 \Rightarrow BH = \frac{14}{5}$$

AB کوتاه
CA و B