

IV

سوال ۱۰

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

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$$\sqrt{(-r-r)^2 + (k-m)^2} = \sqrt{r^2} \Rightarrow S = \sqrt{r^2} \times \sqrt{r^2} = r^2$$

$$x_A + x_B = x_C + x_D \rightarrow 2x = r \Rightarrow x = \frac{r}{2}$$

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$$m_{AB} = -\frac{r}{r} = -1 \Rightarrow m_{BC} = \frac{r}{r} = 1 \Rightarrow \frac{y-1}{-r} = \frac{r}{r} \Rightarrow y = -1$$

$$BC = \sqrt{r^2 + r^2} = \frac{r}{\sqrt{2}}$$

$$AB = \sqrt{r^2 + r^2} = \frac{r}{\sqrt{2}} \rightarrow \text{مساحت} = \frac{1}{2} (AB \times BC) = \frac{1}{2} \left(\frac{r}{\sqrt{2}} \times \frac{r}{\sqrt{2}} \right) = \frac{r^2}{4}$$

$$m = \tan 45^\circ = 1 \rightarrow y = x + (m-1)y = r \Rightarrow \frac{-r}{m-1} = 1 \Rightarrow \frac{-r}{1-1} = 1 \Rightarrow \text{undefined}$$

$$\frac{\sqrt{2}}{|\text{آ}|} = \frac{\sqrt{r^2 + r^2}}{\sqrt{2}} = \frac{r}{\sqrt{2}}$$

$$m_{BC} = \frac{1-r}{1-r} = 1 \Rightarrow y-r = 1(x-r) \rightarrow y = x-r$$

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$$\rightarrow y = x-r < 0 \quad d = \frac{|1 \cdot x - 1 \cdot y + r|}{\sqrt{1^2 + 1^2}} = \frac{|x - (x-r) + r|}{\sqrt{2}} = \frac{r}{\sqrt{2}}$$

$$AB: y = x-r$$

$$d = \frac{|1 \cdot y - 1 \cdot x + r|}{\sqrt{1^2 + 1^2}} = \frac{r}{\sqrt{2}}$$

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$$BC: y = x-r$$

$$11x = 11r \Rightarrow x = r, y = 1$$

$$m = \frac{0-9}{-\frac{r}{a}} = -1 \rightarrow y = -1x - 9 \quad a = -1a - 9 \rightarrow a = -\frac{r}{r} \quad (2)$$

$$\text{جواباً} \rightarrow \sqrt{\frac{r}{a} + \frac{r}{a}} = \frac{r\sqrt{2}}{r}$$

$$ay - x = a - 1 \rightarrow y = \frac{x}{a} + \frac{a-1}{a} \quad (3)$$

$$y - ax = 1 \rightarrow y = ax + 1$$

$$\Rightarrow \frac{1}{a} = a \Rightarrow a = \pm 1$$

$$a = 1 \rightarrow y = x \rightarrow y = x + 1 \quad \checkmark$$

$$a = -1 \rightarrow y = -x \rightarrow y = -x + 1 \quad \checkmark$$

$$y = \frac{1-c-1}{\sqrt{a^2+b^2}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \quad \Delta = \sqrt{2x^2+y^2} \rightarrow \left(\frac{\sqrt{2}}{2}\right)^2 + 2x^2 = 2 \rightarrow x = \frac{1}{\sqrt{2}}$$

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

$$x - 3y = 1 \rightarrow 3y = x - 1 \rightarrow y = \frac{x}{3} - \frac{1}{3} \quad (4)$$

$$d = \frac{|1-1|}{\sqrt{1+9}} = \frac{0}{10} \quad m_{AC} = -3 \rightarrow y = -3(x-5) = -3x + 15$$

$$\frac{x}{r} - \frac{1}{r} = -3x + 15 \rightarrow 10x = 15r \rightarrow x = \frac{3}{2}r, y = 0, 9$$

$$\begin{vmatrix} 3r & 15 & 1 \\ 0 & 9 & 0 \\ 1 & 1 & 1 \end{vmatrix} = 15r \rightarrow S = \frac{1}{2} \times 15r = 7.5r$$

$$m = \frac{b-a}{-\frac{1}{r} + \frac{1}{r}} = -\sqrt{r} \rightarrow b-a = \frac{\sqrt{r}}{r}$$

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$$a = \sqrt{\left(\frac{1}{r}\right)^2 + \left(\frac{\sqrt{r}}{r}\right)^2} = \sqrt{\frac{r}{r^2}} = \frac{r}{r} = 1 \Rightarrow b = \frac{\sqrt{r}}{r}$$

$$r = \sqrt{r^2 + r^2} = \sqrt{2} \quad m_{OA} = \frac{r}{r} = 1 \quad m_C = -\frac{r}{r}$$

(16)

$$\circ \text{ All } L' \rightarrow m_C = \frac{r}{r} \quad \circ A \rightarrow y = \frac{r}{r} \quad L' = \frac{r}{r} x + c$$

$$r = \sqrt{2} \rightarrow \frac{c}{\sqrt{10} \frac{1}{r}} = \frac{r}{\sqrt{2}} = \sqrt{2} \Rightarrow c = \frac{r}{r}$$

$$L' \rightarrow y = \frac{r}{r} x + \frac{r}{r} \quad L \rightarrow y + r = \frac{-r}{r} \Rightarrow y = -\frac{r}{r} x - \frac{r}{r}$$

$$\frac{rx_B}{r} + \frac{r}{r} = -\frac{rx_B}{r} - \frac{r}{r} \quad \times 1 \rightarrow 19x_B + 9x_B = -\sqrt{2} - 1$$

$$x_B = -\sqrt{2} \quad y_B = -1 \rightarrow xy = -\sqrt{2}$$