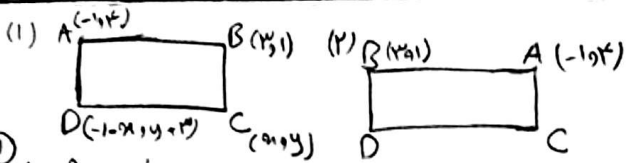


$$m = \frac{k-m}{-r-k} = -\frac{1}{r} \rightarrow k-m = r$$

-۱

$$\sqrt{\left(\frac{k+r}{r}\right)^2 + \left(\frac{k-m}{r}\right)^2} = \sqrt{k^2} = r\sqrt{k} \Rightarrow S = (r\sqrt{k})^2 = rk$$

-۲



$$\textcircled{1} -1+r = r-y$$

$$r = \frac{r}{r}$$

$$r+y = y+r \Rightarrow \begin{cases} m_{AB} = \frac{1-r}{r+1} = -\frac{r}{r} \\ m_{AC} = \frac{1-y}{\frac{r}{r}} = \frac{r-y}{r} \end{cases} \xrightarrow{r \perp AC} \frac{r-y}{r} = \frac{r}{r} \rightarrow y = -1 \Rightarrow C = \left(\frac{r}{r}, -1\right)$$

$$D = \left(-\frac{r}{r}, r\right)$$

$$AB = \sqrt{(-r)^2 + (r)^2} = r \rightarrow r = r\left(\frac{r}{r} + \frac{r}{r}\right) = 1r$$

$$BC = \sqrt{\left(\frac{r}{r}\right)^2 + (r)^2} = \frac{r}{r}$$

$$\textcircled{2} -r-r = r+r \rightarrow r = -\frac{r}{r}$$

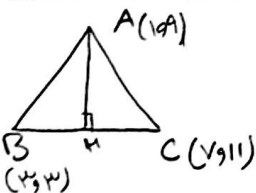
$$y+1 = y+r \rightarrow r \perp AC$$

پس آنرا این شکل در نظر

$$m = \tan 40^\circ = \sqrt{r} \Rightarrow \frac{-rm}{m^2-1} = \sqrt{r} \rightarrow \sqrt{r}m^2 + rm - \sqrt{r} = 0 \xrightarrow{\times \sqrt{r}} \sqrt{r}m^2 + r\sqrt{r}m - r = 0 \Rightarrow$$

-۳

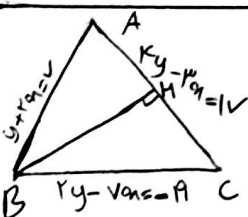
$$\frac{\sqrt{r}}{|a|} = \frac{\sqrt{r}1}{r} = \frac{r\sqrt{r}}{r}$$



$$m_{BC} = \frac{1-r}{r-r} = r \rightarrow r \cdot y = r \cdot x + b \rightarrow b = -r \Rightarrow y = rx - r$$

-۴

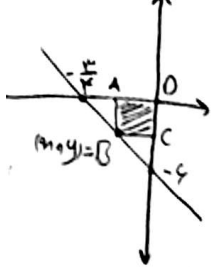
$$AH = \frac{|r-1-r|}{\sqrt{r+1}} = \frac{10}{\sqrt{r}} = r\sqrt{r}$$



$$-rx + r = \frac{rx-1}{r} \rightarrow r = r, y = 1$$

-۵

$$BH = \frac{|(r+1) + (-r \cdot r) - 1|}{\sqrt{14+9}} = \frac{r}{r}$$

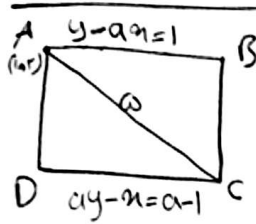


$$m = \frac{-1-0}{0+\frac{1}{k}} = -1 \Rightarrow y = -1x - 1 \Rightarrow B = (1, -1)$$

$$AB = BC$$

$$-1x - 1 = x \rightarrow x = -\frac{1}{2}, y = -\frac{1}{2}$$

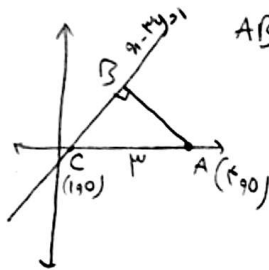
$$\text{قطر} = \sqrt{\left(-\frac{1}{2}\right)^2 + \left(-\frac{1}{2}\right)^2} = \frac{1}{\sqrt{2}} \sqrt{2}$$



$$m_{AB} = m_{DC} \Rightarrow a = \frac{1}{a} \rightarrow a^2 = 1 \rightarrow a = \pm 1$$

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

$$DC = \sqrt{a^2 - \left(\frac{\sqrt{2}}{2}\right)^2} = \frac{1}{2} \sqrt{2} \Rightarrow S = \frac{\sqrt{2}}{2} \times \frac{1}{2} \sqrt{2} = \frac{1}{2}$$

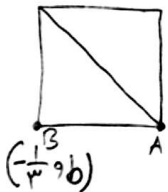


$$AB = \frac{|1-1|}{\sqrt{1+1}} = \frac{\sqrt{2}}{2}$$

$$C = (1, 0) \rightarrow C = (1, 0)$$

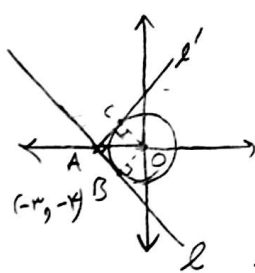
$$m_{AB} = -1 \Rightarrow y = -x + 1 \Rightarrow -x + 1 = x - 1$$

$$BC = \sqrt{\left(\frac{1}{2}\right)^2 + \left(\frac{1}{2}\right)^2} = \frac{\sqrt{2}}{2} \Rightarrow S = \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} \times \frac{1}{2} = \frac{1}{4}$$



$$m = \frac{a-b}{-\frac{1}{a} + \frac{1}{b}} = \sqrt{2} \rightarrow a-b = -\frac{\sqrt{2}}{2} \Rightarrow AB = \sqrt{(a-b)^2 + \left(-\frac{1}{a} + \frac{1}{b}\right)^2} = \frac{1}{2}$$

$$BC = \sqrt{\left(\frac{1}{2}\right)^2 + \left(\frac{1}{2}\right)^2} = \frac{\sqrt{2}}{2}$$



$$m_{BO} \perp m_{l} \Rightarrow m_{BO} = m_{l'} \Rightarrow m_{BO} = \frac{1}{2} \rightarrow m_{l'} = \frac{1}{2}$$

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

$$m_{l'} = \frac{1}{2} \Rightarrow y = \frac{1}{2}x + b \Rightarrow y = \frac{1}{2}x + \frac{1}{2}$$

$$A \Rightarrow \frac{1}{2}x + \frac{1}{2} = -\frac{1}{2}x - \frac{1}{2} \rightarrow x = -1, y = 1 \Rightarrow \text{قوة} = -1x - 1 \Rightarrow \sqrt{2}$$