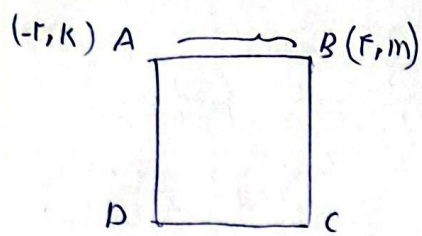


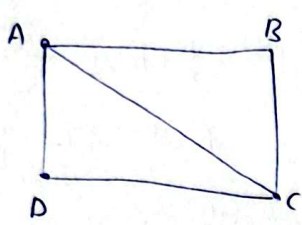
ایستار کریم زاده - یازدهم دبیر - ب - تطبیق ۱۷ (سوال)



با AB $\rightarrow -\frac{1}{r} = \frac{m-k}{4} \rightarrow -4 = rm - rk \rightarrow m-k = -4$

$AB = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2} \rightarrow \sqrt{\frac{(r+1)^2}{4} + \frac{(m-k)^2}{4}} = \sqrt{10} = 2\sqrt{10}$

$S = 2\sqrt{10} \times 2\sqrt{10} = \boxed{40}$



$A+C = D+B$

$-x-1+3 = x-1 \rightarrow r_k = 3 \rightarrow x = 1, 0$

$y+3+1 = y+3$

$AB = CD = \sqrt{(r+1)^2 + (1-r)^2} = 2$

$AC^2 = AD^2 + DC^2 \rightarrow \left(\sqrt{\frac{(x+1)^2}{4} + \frac{(y-1)^2}{4}}\right)^2 = \frac{r^2}{4} + (y-1)^2 + r^2$

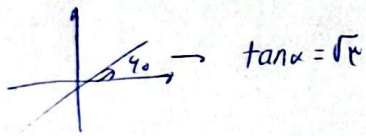
$y^2 - 2y + 1 + 4 = y^2 - 2y + 1 + r^2 \rightarrow -2y + 5 = -2y + r^2 + 1 \rightarrow -2y + 4 = r^2 \rightarrow \boxed{y = -1}$

$AD = BC = \sqrt{\frac{(x-r)^2}{4} + \frac{(y-1)^2}{4}} = \sqrt{11} = 2\sqrt{11}$

$r(2\sqrt{11} + 2) = \boxed{10}$

$rmx + (m^2-1)y = r$

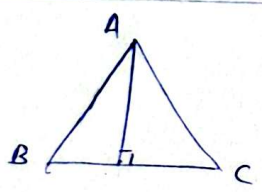
$\rightarrow y = \frac{-rm}{m^2-1}x + \frac{r}{m^2-1}$



$\frac{-rm}{m^2-1} = \sqrt{r} \rightarrow \sqrt{r}m^2 - \sqrt{r} = -rm \rightarrow \sqrt{r}m^2 + rm + \sqrt{r} = 0$

$\rightarrow m^2 + rm - r \rightarrow (m+r)(m-1) \left\{ \begin{array}{l} \frac{r}{\sqrt{r}} = -\sqrt{r} \\ \frac{1}{\sqrt{r}} = \frac{\sqrt{r}}{r} \end{array} \right.$

$\frac{\sqrt{r}}{r} + \sqrt{r} = \frac{\sqrt{r} + r\sqrt{r}}{r} = \boxed{\frac{r\sqrt{r}}{r}}$



$BC \rightarrow \frac{11-r}{v-r} = \frac{1}{r} = r \rightarrow y = r_k - r \rightarrow y - r_k + r = 0$

$y = r_k - r \rightarrow y - r_k + r = 0$

$AH = \frac{|9-r+r|}{\sqrt{1+r+r}} = \frac{9}{\sqrt{2}} = \frac{9\sqrt{2}}{2}$

$AB, y+r_k = v$

$\rightarrow -ry - 11x = -r11$

$AC, ry - rk = 1v$

$\frac{ry - rk = 1v}{-11x = -11} \rightarrow \boxed{x = 1} \rightarrow \boxed{y = 0} \rightarrow A$

$BC, ry - vk = -11$

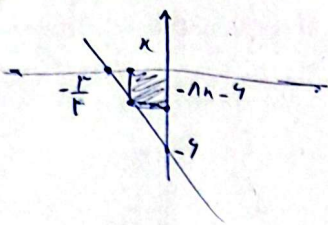
$\rightarrow \frac{ry - rk = 1v}{ry - 1rk = -11} \rightarrow \boxed{x = 0} \rightarrow \boxed{y = 1} \rightarrow C$

$\left. \begin{array}{l} -ry - rk = -11 \\ ry - vk = -11 \end{array} \right\} \rightarrow -11x = -11 \rightarrow \boxed{x = 1} \rightarrow \boxed{y = 1} \rightarrow B$

$\rightarrow AC = \frac{1-0}{0-1} = \frac{r}{-1} \rightarrow y = \frac{r}{-1}x + \frac{1v}{-1}$

$\rightarrow ry - rk - 1v = 0$

$BH = \frac{|r-9-1v|}{\sqrt{1+9+9}} = \frac{r}{2} = \boxed{\frac{r}{2}}$



$$\frac{-9}{7\sqrt{2}} = -\lambda$$

$$y = -\lambda x - 9$$

-9

$$\lambda = -\lambda x - 9 \rightarrow 9\lambda = -9 \rightarrow \lambda = \frac{-1}{\mu}$$

$$\theta = \frac{r}{\mu} \times \frac{r}{\mu} = \frac{r}{\mu}$$

$$\left(\frac{r}{\mu}\right)^2 = \frac{r}{\mu} \rightarrow \frac{r}{\mu} = \frac{\sqrt{r}}{\mu}$$

$$ay - \lambda = a - 1$$

$$y - ax = 1$$

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

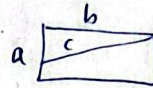
$$\rightarrow \cos \theta = \frac{|1|}{\sqrt{1^2 + 1^2}} = \frac{1}{\sqrt{2}}$$

-v

$$a=1 \rightarrow \begin{cases} y-x=0 \\ y-\lambda-1=0 \end{cases} \xrightarrow{(1,1)} \begin{cases} 1-1=0 \\ \checkmark \end{cases}$$

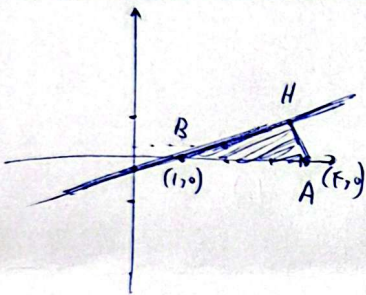
$$\left(\frac{1}{\sqrt{2}}\right)^2 + b^2 = r^2 \rightarrow \frac{1}{2} + b^2 = r^2$$

$$a=-1 \rightarrow \begin{cases} y+x-1=0 \\ y+\lambda-r=0 \end{cases}$$



$$b^2 = \frac{r^2}{2} \rightarrow b = \frac{r}{\sqrt{2}}$$

$$ab = \frac{r}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{r}{2}$$



$$\cos \theta = \frac{AH}{AH} \rightarrow \text{Max } \cos \theta \checkmark$$

-A

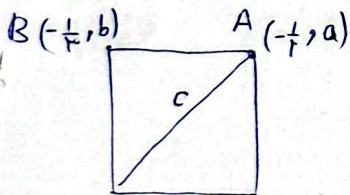
$$\cos \theta = \frac{|1 \cdot 0 - 0 \cdot 1|}{\sqrt{1^2 + 0^2}} = \frac{0}{1} = 0$$

$$x - y = 1 \rightarrow x + y = a \xrightarrow{A(1,0)} 1 + 0 = a \rightarrow a = 1$$

$$BH = \sqrt{\left(1 - \frac{r}{\sqrt{2}}\right)^2 + \left(\frac{a}{\sqrt{2}}\right)^2} = \sqrt{\frac{110}{100}} = \frac{a}{\sqrt{2}}$$

$$\begin{cases} x - y = 1 \\ x + y = 1 \end{cases} \rightarrow \begin{cases} x - y = 1 \\ x + y = 1 \end{cases} \xrightarrow{+} 2x = 2 \rightarrow x = 1$$

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



$$\frac{a-b}{-\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}} = \sqrt{2} \rightarrow a-b = -\frac{\sqrt{2}}{2}$$

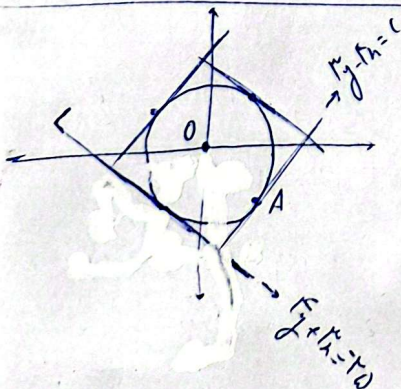
-9

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

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

$$S = \frac{cx}{2} = \frac{1}{2} \rightarrow cx = 1 \rightarrow c = \frac{1}{x}$$

$$c = \frac{\sqrt{2}}{2}$$



$$OL = \sqrt{(1)^2 + (0)^2} = \sqrt{1} = 1$$

$$OA = \frac{|0 - 0 - c|}{\sqrt{1^2 + 1^2}} = \frac{c}{\sqrt{2}}$$

-10

$$\begin{cases} x - y = 1 \\ x + y = 1 \end{cases} \rightarrow \begin{cases} x - y = 1 \\ x + y = 1 \end{cases} \xrightarrow{+} 2x = 2 \rightarrow x = 1$$

$$y = \frac{r}{\mu} x + \frac{c}{\mu} \rightarrow y = \frac{r}{\mu} x + \frac{c}{\mu}$$

عرض از مبدأ ← منحنی

$$\rightarrow y = -1$$