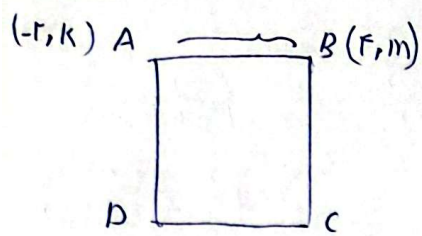


19,5

ایستار ترمز را در ۱۷ - یازدهم دقت B - تنظیم ۱۷

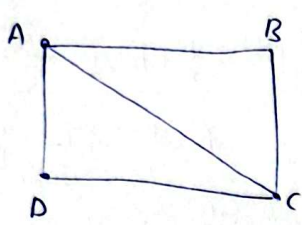
(سوال)



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

$$AB = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2} \rightarrow \sqrt{\frac{(r+1)^2}{r^2} + \frac{(m-k)^2}{r^2}} = \sqrt{5} = 2\sqrt{5}$$

$$S = 2\sqrt{5} \times 2\sqrt{5} = \boxed{20}$$



$$A+C = D+B$$

$$-x-1+r = x-1 \rightarrow r=2 \rightarrow x=1, 0$$

$$y+r+1 = y+r$$

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

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

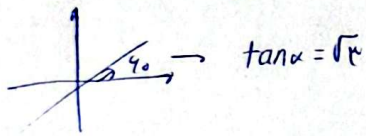
$$y^2 - 2y + 1 + r^2 = y^2 - 2y + 1 + r^2 \rightarrow -2y + 2y = 0 \rightarrow \boxed{y = -1}$$

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

$$r(r+1) = \frac{1}{4}$$

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

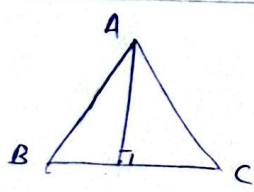
$$\rightarrow y = \frac{-rm}{m^2-1}x + \frac{r}{m^2-1}$$



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

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

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



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

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

$$AB, y+r=1$$

$$AC, y-r=1$$

$$BC, y-v=-1$$

$$\rightarrow \begin{cases} -ry - 1x = -r \\ ry - 1x = 1 \end{cases} \rightarrow \begin{cases} -11x = -11 \\ -11x = -11 \end{cases} \rightarrow \begin{cases} x=1 \\ y=0 \end{cases} A$$

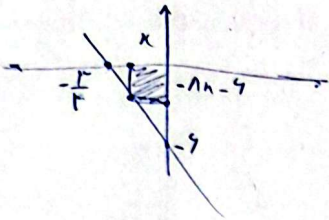
$$\rightarrow \begin{cases} ry - 1x = 1 \\ ry - 1x = -1 \end{cases} \rightarrow \begin{cases} 2y = 0 \\ 2y = 0 \end{cases} \rightarrow \begin{cases} x=0 \\ y=1 \end{cases} C$$

$$\begin{cases} -ry - 1x = -1 \\ ry - 1x = -1 \end{cases} \rightarrow \begin{cases} -11x = -11 \\ 11x = -11 \end{cases} \rightarrow \begin{cases} x=1 \\ y=1 \end{cases} B$$

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

$$\rightarrow ry - 1x - 1 = 0$$

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



$$\frac{-9}{7\sqrt{10}} = -\lambda$$

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

-9

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

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

$$\frac{(\frac{r}{r})^2}{r} = \frac{r}{r} \rightarrow \frac{r}{r} = \frac{r}{r}$$

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

$$y - ax = 1$$

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

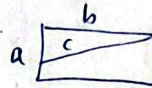
$$\rightarrow \cos \theta = \frac{|1|}{\sqrt{1^2 + 1^2}} = \frac{1}{\sqrt{2}}$$

-v

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

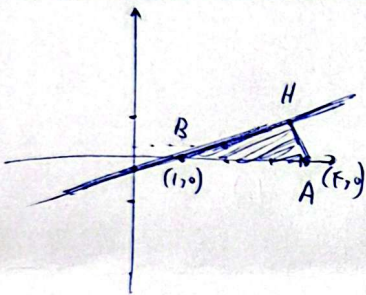
$$a=-1 \rightarrow \begin{cases} y+x-1=0 \\ y+x-r=0 \end{cases}$$

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



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

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



$$\cos \theta = \frac{AH}{AH} \rightarrow \max \cos \theta$$

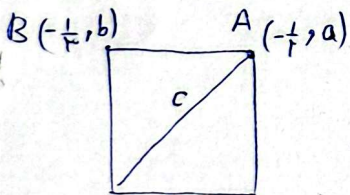
$$\cos \theta = \frac{|1-0-1|}{\sqrt{1+1}} = \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$$BH = \sqrt{(1-\frac{r}{r})^2 + (\frac{1}{r})^2} = \sqrt{\frac{1+1}{r^2}} = \frac{1}{r}$$

$$S = \frac{r}{r} \times \frac{1}{r} \times \frac{1}{r} = \frac{1}{r}$$

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

$$4 \begin{cases} x-y=1 \\ x+y=1r \end{cases} \rightarrow \begin{cases} x-y=1 \\ x+y=1r \end{cases} \rightarrow \begin{cases} x-y=1 \\ x+y=1r \end{cases} \rightarrow \begin{cases} x-y=1 \\ x+y=1r \end{cases}$$

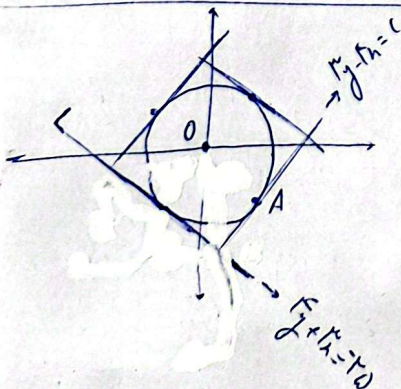


$$\frac{a-b}{-\frac{1}{r} + \frac{1}{r}} = \sqrt{r} \rightarrow a-b = -\frac{\sqrt{r}}{r}$$

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

$$S = \frac{1}{r} \times \frac{1}{r} = \frac{1}{r}$$

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



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

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

$$|c| = r$$

$$\begin{cases} y-x=-r \\ y+x=r \end{cases} \rightarrow \begin{cases} y-x=-r \\ y+x=r \end{cases} \rightarrow \begin{cases} y-x=-r \\ y+x=r \end{cases}$$

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

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