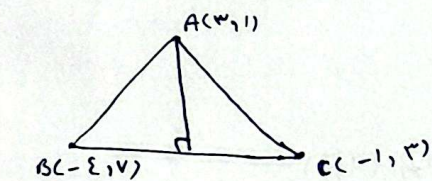


$A(1, -4)$ $B(2, 1)$
 $M = \frac{1 - (-4)}{2 - 1} = \frac{5}{1} = 5 \rightarrow m' = -\frac{1}{5}$
 $C(3, 1)$

$y = \frac{1}{5}x + b$
 $1 = \frac{2}{5} + b \Rightarrow b = \frac{3}{5}$
 $y = \frac{1}{5}x + \frac{3}{5}$

$A(3, 1)$ $B(-1, 5)$ $C(-1, 3)$



$BC \perp AD \Rightarrow \sqrt{(5-3)^2 + (-1+1)^2} = \sqrt{4+0} = 2$

$\frac{|1+5-\frac{3}{5}|}{\sqrt{1+\frac{14}{9}}} = \frac{\frac{10}{5}}{\frac{\sqrt{23}}{3}} = \frac{6}{\sqrt{23}}$

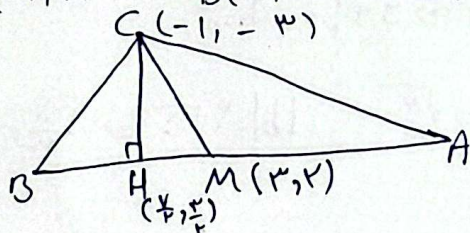
AB line: $y = -\frac{4}{5}x + b \Rightarrow y = -\frac{4}{5}x + \frac{13}{5}$
 $\frac{5-3}{-1-3} = \frac{2}{-4} = -\frac{1}{2}$
 $3 = -\frac{4}{5}x + b$
 $b = \frac{19}{5}$

$AD = 2$

$xy - ax - r = 0$ $a = r$
 $xy - rx - 12 = 0$
 $\pi r^2 = \frac{9}{4}\pi$

$\frac{1}{2} \pi r^2 = \pi r = \frac{|-r+12|}{\sqrt{14+2}} = \frac{11}{\sqrt{16}}$
 $\pi r = \frac{4\sqrt{10}}{a} \Rightarrow r = \frac{4\sqrt{10}}{a}$

$A(1, 3)$ $B(1, 1)$ $C(-1, -3)$



AB line: $\begin{cases} m = \frac{3-1}{1-1} = \text{undefined} \\ y = -x + b \Rightarrow y = -x + 4 \\ 3 = -1 + b \Rightarrow b = 4 \end{cases}$
 $y' = x + b \Rightarrow y' = x - 2$
 $-3 = -1 + b \Rightarrow b = -2$
 $x - 3 = -x + 4 \Rightarrow x = \frac{7}{2}$
 $y = \frac{7}{2} - 2 = \frac{3}{2}$

$\sqrt{\left(3 - \frac{7}{2}\right)^2 + \left(1 - \frac{7}{2}\right)^2} = \sqrt{\frac{1}{4} + \frac{1}{4}} = \sqrt{\frac{1}{2}} = \frac{1}{\sqrt{2}}$

$$(pm - r)u + (a - m)y - v = 0 \Rightarrow m = -\frac{pm - r}{a - m} = \frac{pm - r}{m - a} \quad -8$$

$$(m+1)u - (pm - r)y + 1 = 0 \Rightarrow m' = \frac{m+1}{pm - r}$$

$$\frac{pm - r}{m - a} = -\frac{pm - r}{m+1} \Rightarrow \frac{pm - r}{m - a} = \frac{r - pm}{m+1} \Rightarrow \cancel{pm} + \cancel{pm} - \cancel{pm} = \cancel{pm} - \cancel{pm} - \cancel{r} + \cancel{r}$$

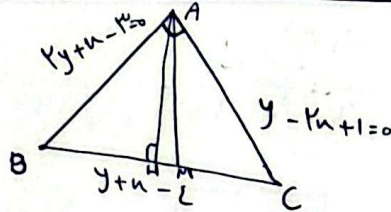
$$\Delta m^2 - 12m + 11 = 0$$

$$\Delta = 144 - 4(11) < 0 \quad \Delta < 0$$

$$\frac{144}{4} = 36$$

$$m \text{ مقلوبه } 0.11$$

$$\begin{cases} AB: u + ry = r \\ AC: y = pu - 1 \\ BC: u + y = r \end{cases}$$



$$pu - 1 = -\frac{u}{r} + \frac{r}{r} \Rightarrow \frac{pu}{r} + \frac{u}{r} = \frac{r}{r} + 1 \Rightarrow u = 1, y = 1 \Rightarrow A(1, 1)$$

$$-\frac{u}{r} + \frac{r}{r} = -u + r \Rightarrow u = 0, y = -1 \Rightarrow B(0, -1)$$

$$pu - 1 = \frac{r}{r} - u \Rightarrow pu = 2 \Rightarrow u = \frac{2}{p}, y = \frac{r}{p} \Rightarrow C(\frac{2}{p}, \frac{r}{p})$$

$$M(\frac{1}{p}, \frac{r}{p})$$

$$BC \rightarrow M = \frac{\frac{1}{p}}{-\frac{1}{r}} = -1 \rightarrow m' = 1 \Rightarrow y = u + b \Rightarrow y = u$$

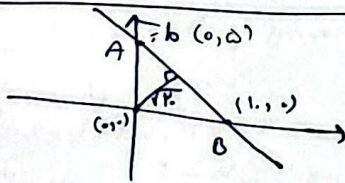
$$u = -u + r \Rightarrow 2u = r \Rightarrow u = \frac{r}{2} \Rightarrow y = r \Rightarrow H(r, r)$$

$$AH \text{ ارتفاع} = \sqrt{(r-1)^2 + (r-1)^2} = \sqrt{2}$$

$$AM \text{ ارتفاع} = \sqrt{(\frac{1}{p} - \frac{1}{p})^2 + (\frac{1}{p} - \frac{r}{p})^2} = \sqrt{\frac{r^2}{a^2} + \frac{1}{a^2}} = \sqrt{\frac{a^2}{a^2}} = \frac{a}{p}$$

$$\frac{\frac{a}{p}}{\sqrt{2}} = \boxed{\frac{a}{p}}$$

$$m = -\frac{1}{p}$$



$$y = -\frac{1}{p}u + b \Rightarrow y + \frac{1}{p}u - b = 0$$

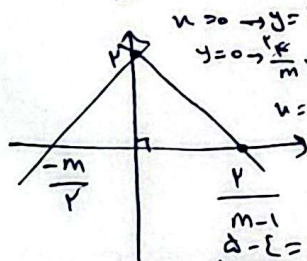
$$\frac{|0 + 0 - b|}{\sqrt{1 + \frac{1}{p^2}}} = \sqrt{2} \quad |b| = \sqrt{2} \times \frac{\sqrt{a}}{p} = a$$

$$\sqrt{1 + \frac{1}{p^2}} = \sqrt{1 + \frac{1}{p^2}} = \boxed{a}$$

$$y = \frac{r}{m}u + r$$

$$y = u(1 - m) + r$$

$$\frac{1}{p} \times \frac{r}{p} \left(\frac{-m}{r} - \frac{r}{m-1} \right) = \frac{a}{p}$$



$$\left(\frac{r}{m-1} + \frac{m}{r} \right) \times \frac{1}{p} \times r = \frac{a}{p}$$

$$-(r)(\sqrt{a} - r)(\sqrt{a} + r) = -r \quad \frac{r + m^2 - m}{pm - r} = \frac{a}{p}$$

$$\begin{aligned} \Delta m - a &= -m^2 + m - r \\ m^2 + \Delta m - 1 &= 0 \\ m^2 - 4m + 4 &= 0 \\ (m-2)^2 &= 0 \Rightarrow m = 2 \end{aligned}$$

$$y = 2x - 2 = y - 2x + 2 = 0$$

$$\frac{|-2 - 2 + 2|}{\sqrt{1+2}} = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

$$y = 2x - 9$$

$$y = 2x + b \rightarrow y - 2x - b = 0$$

$$\frac{|2 + b|}{\sqrt{1+2}} = \frac{2}{\sqrt{3}} \Rightarrow \begin{cases} b + 2 = 2 \\ b = 0 \end{cases}$$

$$\begin{cases} b + 2 = -2 \\ b = -4 \end{cases}$$

$$y - 2x - 2 = 0$$

$$y - 2x + 9 = 0$$

$$A(1, 2)$$

$$y = -x + b \Rightarrow y = -x + 3 \Rightarrow y = 2$$

$$2 = -1 + b \Rightarrow b = 3$$

$$a = -3$$

$$b = 4$$

$$A'(-3, 4)$$

$$1 + x_{A'} = -2$$

$$x_{A'} = -3$$

$$2 + y_{A'} = 6$$

$$y_{A'} = 4$$

$$-x + 3 = x + 2 \Rightarrow 2x = 1 \Rightarrow x = 0.5$$

$$kb - a \mid r + r_s \mid 15$$