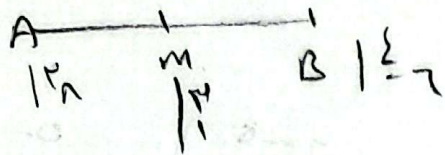


به دلیل نزدیکی نام، نام خانوادگی نیزه شده (۱۵) می باشد

① ۱۴



$$m_x = \frac{1+2}{2-2} = \infty$$

$$m_y = \frac{1-2}{2-2} = \infty$$

$$a = \frac{y_A - y_B}{x_A - x_B} = \frac{1-2}{2-2} = \frac{1}{-1} = -1 \rightarrow m = -1 \rightarrow y = -x + 2$$

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

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

$$m \mid C_1 \rightarrow -1 = \frac{1}{-1} + h \rightarrow h = \frac{2}{-1} = -2$$

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

B(-2, 1)

A(2, 1)

$$m = \frac{-1-1}{2+2} = \frac{-2}{4} = -\frac{1}{2}$$

②

$$y = -\frac{1}{2}x + h \rightarrow y + \frac{1}{2}x - \frac{1}{2} = 0$$

$$x = -1 \quad h = \frac{1}{2}$$

$$m_{BC} = \frac{1}{-2} \rightarrow y + \frac{1}{2}x - \frac{1}{2} = 0$$

$$BC \mid A \text{ and } C = 1$$

$$d = r = \frac{1}{2}$$

$$BC = \sqrt{1+4} = \sqrt{5}$$

$$AH = \frac{1 + \frac{1}{2} - \frac{1}{2}}{\sqrt{1 + \frac{1}{4}}} = \frac{1}{\sqrt{1 + \frac{1}{4}}} = \frac{1}{\sqrt{1.25}} = \frac{1}{\sqrt{5/4}} = \frac{2}{\sqrt{5}}$$

$$BC = \sqrt{(2+2)^2 + (1+1)^2} = \sqrt{16+4} = \sqrt{20} = 2\sqrt{5}$$

$$BC - AH = \sqrt{20} - \frac{2}{\sqrt{5}} = \frac{10}{\sqrt{5}} - \frac{2}{\sqrt{5}} = \frac{8}{\sqrt{5}}$$

③

۹/۵

$$\frac{a}{\sqrt{1+1}} = \frac{1}{\sqrt{1+1}}$$

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

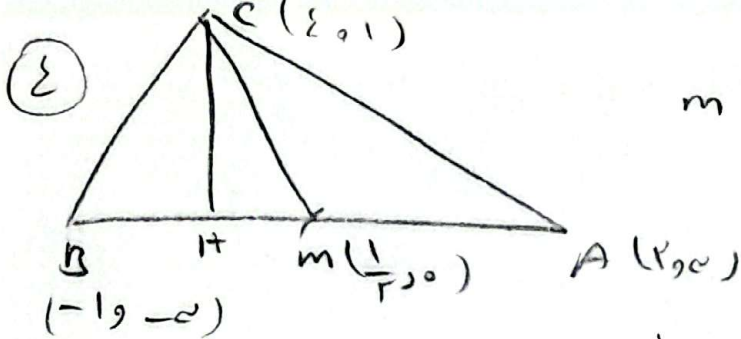
$$x^2 + y^2 - 2x - 2 = 0 \rightarrow x^2 + y^2 - 2x - 2 = 0$$

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

$$C - C' = -1 + 2 = 1 \rightarrow 2r = 1 \rightarrow r = \frac{1}{2}$$

$$C - C' = -1 + 2 = 1 \rightarrow 2r = 1 \rightarrow r = \frac{1}{2}$$

$$r = \frac{1}{2}$$



$$m \mid \frac{1}{r}$$

CH : 1/r $\rightarrow$ $m' = \frac{1/r}{r+1} = \frac{1}{r+1}$

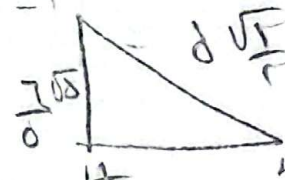
$y = rx + h \rightarrow y = rx - 1$ $m(1/r)$

Ch: $y = x - r$

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

AB: $y - rx + 1 = 0 \rightarrow CH = \frac{|1 - 2 + 1|}{\sqrt{1 + 4}} = \frac{2}{\sqrt{5}}$

$\epsilon_m: \sqrt{\left(\epsilon - \frac{1}{r}\right)^2 + 1} = \frac{\sqrt{r+1}}{r}$



$\frac{r+1}{r} - \frac{r}{r} = \sqrt{\frac{r+1}{r}} = \sqrt{\frac{r+1}{r}}$

③

$m' = \frac{\epsilon m - r}{m - 0}$

$\rightarrow m m' = -1$

$m = \frac{m+1}{rm - \epsilon}$

$(rm - r)(m+1) = (0 - m)(rm - \epsilon)$

⑤

$rm^2 + m - r = -rm^2 + \epsilon m - r$

$2rm^2 - 10m + 12 = 0$

$\Delta < 0 \rightarrow m = \frac{10 \pm \sqrt{100 - 4 \cdot 2 \cdot 12}}{2 \cdot 2}$

④

$AB \perp AC \rightarrow \angle A = 90^\circ$

$A \mid \mid$

$B \mid \mid$

$C \mid \mid$

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

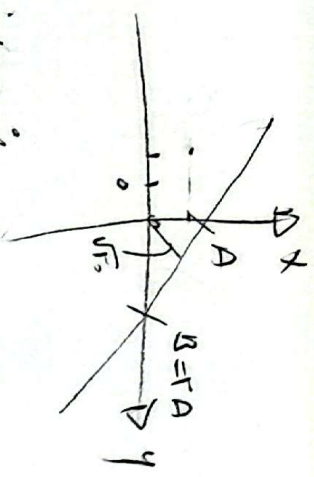
$AH = \frac{|1 + 1 - \epsilon|}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$

⑥

$Am = \frac{\sqrt{2}}{r}, AH = \sqrt{2}$

$\frac{Am}{AH} = \frac{1}{r}$

①



So $AB = \sqrt{A^2 + B^2}$

$y = -\frac{1}{x} + h$
 $B \rightarrow h = \frac{B}{r}$
 $h = A$

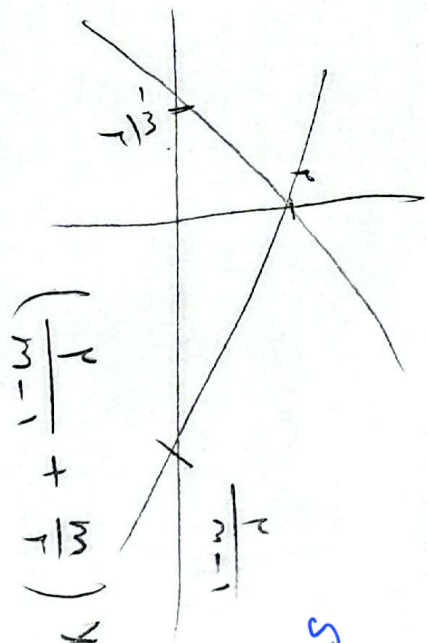
$\boxed{A = B}$

$\frac{y + \frac{1}{x} + A}{\sqrt{1 + \frac{1}{x^2}}} = \sqrt{r}$

$A = \sqrt{A^2 + B^2} \times \sqrt{\frac{1}{r}} = 0 \rightarrow A = 0$
 $B = 1$

$\delta + A$
 $L = \sqrt{A^2 + \delta^2} = \sqrt{1 + 0} = 1$

~~②~~



$S_D = \left| \frac{w^2 - w + k}{r(m-1)} \right| \left| r^2 y \frac{1}{r} = \frac{A}{r} \right|$

$w = \mu$, $w^2 + r(m-1) = 0$
 $\frac{1}{r} \rightarrow \frac{c}{a} = -1$

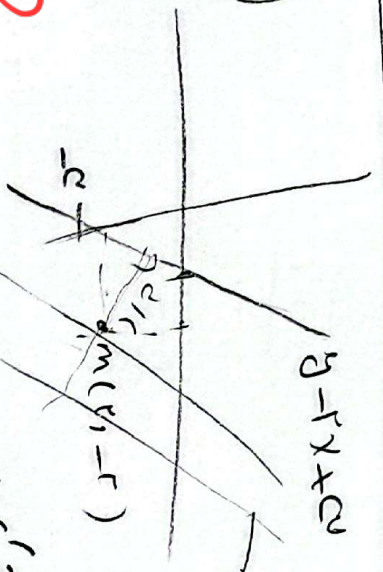
$x(x^2 + m^2 - m) = \frac{1}{2} \cdot \frac{1}{2} \cdot (m-1)$

$m^2 - 2m + 1 = 0$
 $\hookrightarrow w = \mu$

$\boxed{\frac{c}{a} = 1}$

③

④

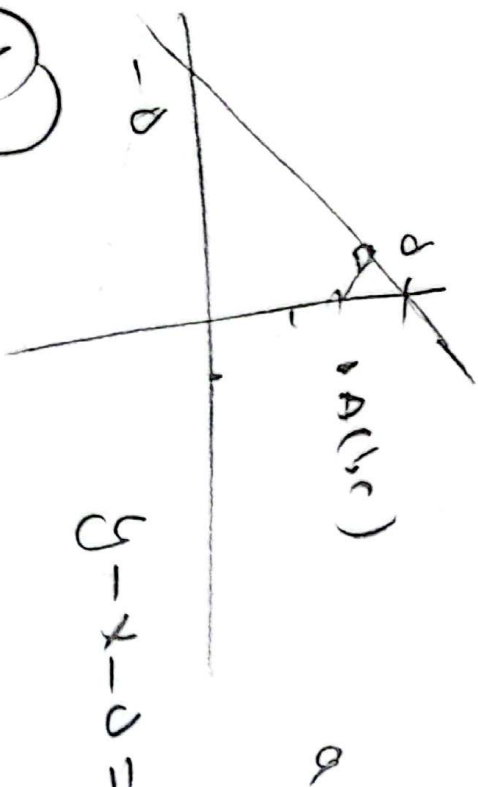


$\alpha = \pi, \beta = -1$
 $y = h_n - 1$

$y = rx + c$
 $y = rx + \frac{c+c'}{r} = 0$
 $\rightarrow r + \frac{c+c'}{r} = 0$
 $1 + \frac{c+c'}{r} = 0$
 $c' = -c - r$

⑤

$y = rx - 1 = 0$



$$y - x - b = 0$$

$$\frac{|y - x - b|}{\sqrt{1^2 + 1^2}} = \frac{|b - a - b|}{\sqrt{2}}$$

①

$$+2 = b - a - b \rightarrow \boxed{b - a = 2}$$

⑤

$$y = -x + b \rightarrow y = -x + c$$

$$\boxed{b = -a + c}$$

$$\begin{aligned} b - a &= 2 \\ b + a &= c \end{aligned} \rightarrow \boxed{\begin{aligned} b &= 2 \\ a &= -c \end{aligned}}$$

$$\boxed{1b - a = 18}$$

$$\begin{aligned} b - a &= 1 \rightarrow a = 1 \\ b + a &= 19 \rightarrow b = 18 \end{aligned}$$