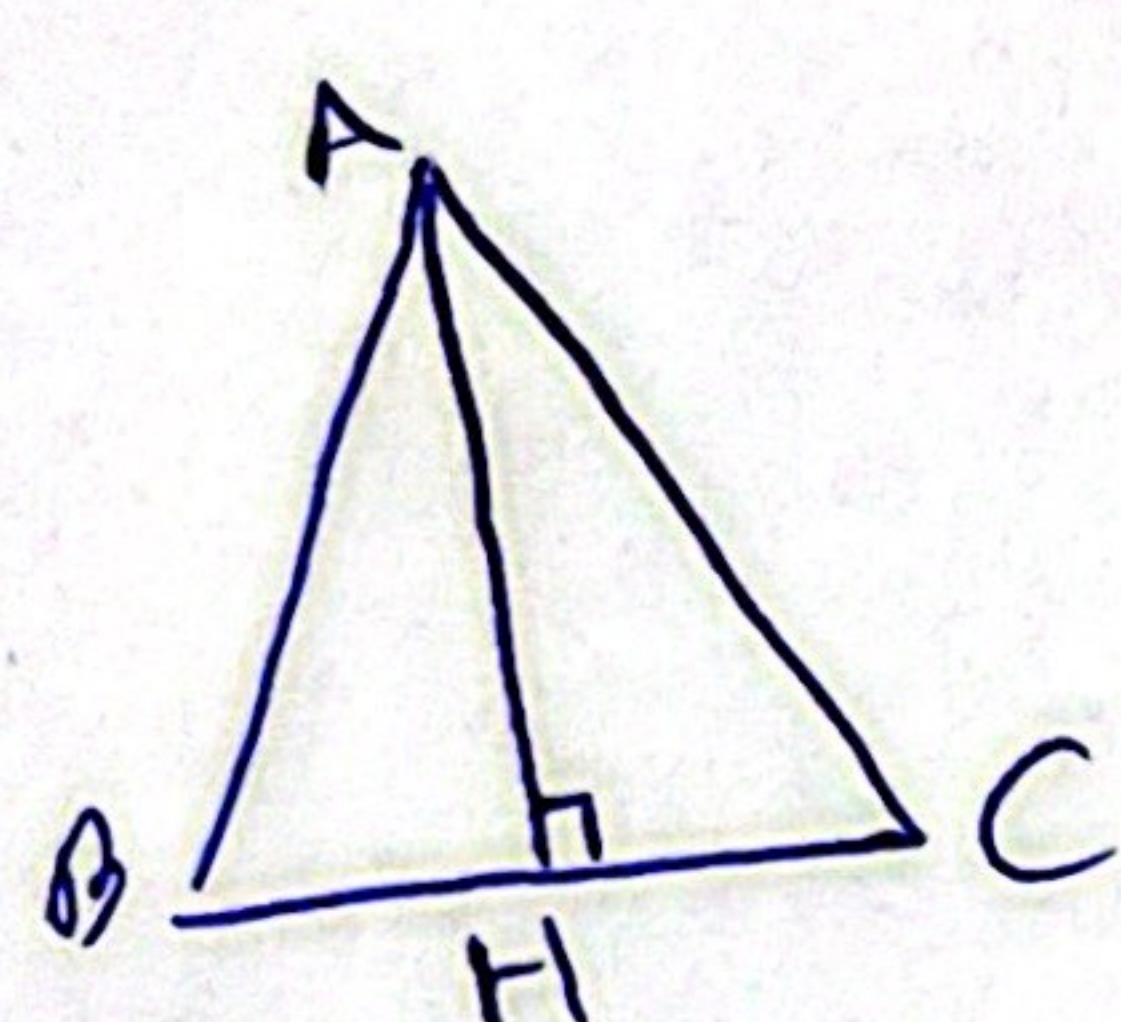


$A(4, -4)$, $B(2, 8)$
 $\alpha = \frac{14}{-2} = -7$
 عمود منتهی: $\alpha'x + b = 2$
 $\alpha' \cdot \alpha = -1 \rightarrow \alpha' = \frac{1}{7}$
 $\frac{x=3}{y=1} \rightarrow \frac{3}{7} + b = 1 \rightarrow b = \frac{4}{7} \rightarrow \frac{1}{7}x + \frac{4}{7} = 2$
 $x + 4 = 14$

$A(3, 1)$, $B(-5, 7)$, $C(-1, 3)$

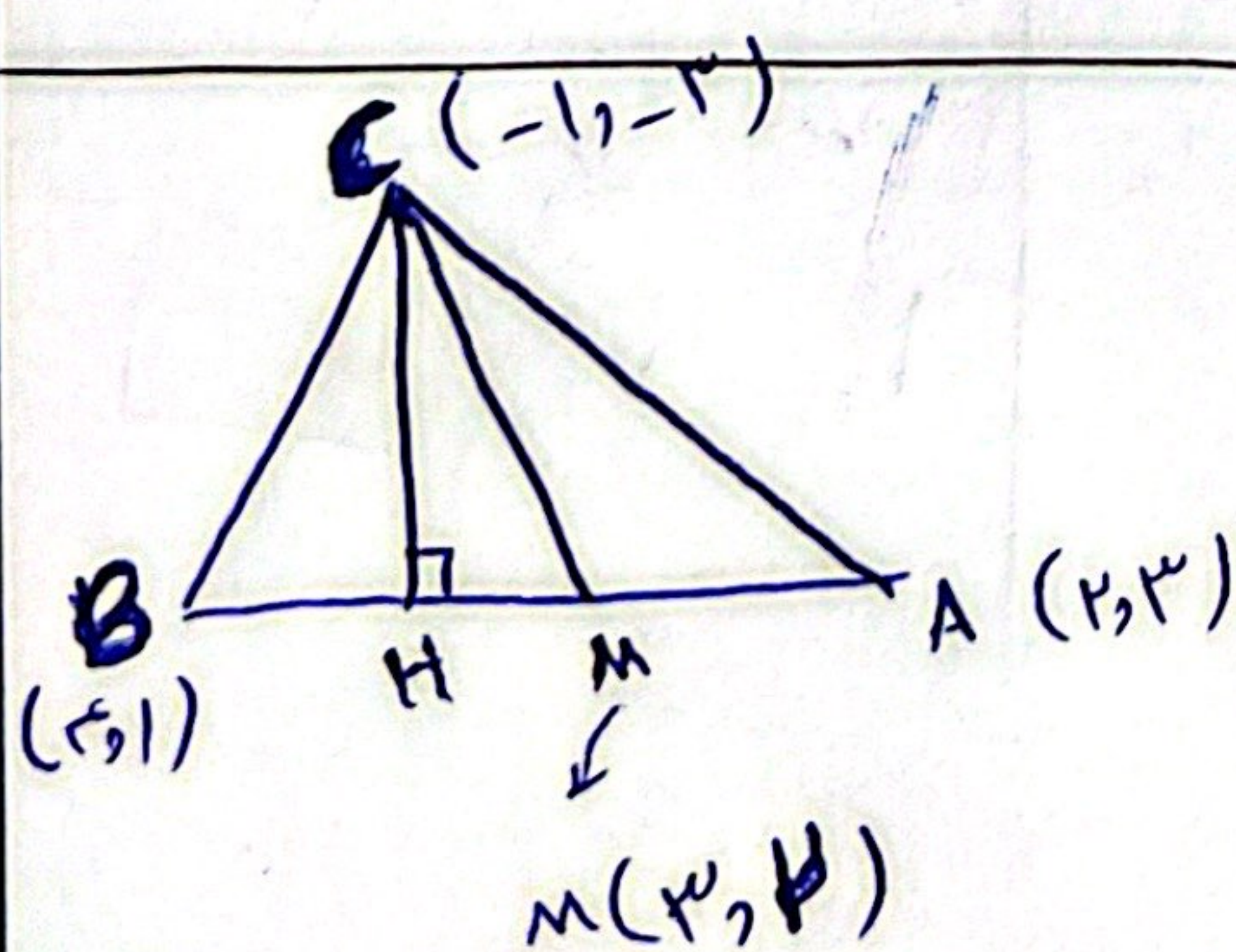


$|BC| = \sqrt{9 + 16} = 5$
 $|AH| = \frac{|AB \cdot AC|}{|BC|} = \frac{11}{5} = 2.2$
 $|BC| - |AH| = 2.8$
 $BC: -\frac{4}{5}x + \frac{6}{5} = 2 \rightarrow -4x + 6 = 10 \rightarrow -4x = 4 \rightarrow x = -1$
 $y = 3$

$2y = x + 7 \rightarrow m = \frac{1}{2}$

$2y = \alpha x + 7 \rightarrow m' = \frac{1}{\alpha} \rightarrow \frac{1}{2} = \frac{1}{\alpha} \rightarrow \alpha = 2$

$2y = 2x + 7 \rightarrow y = x + 3.5$
 $y = x + 7 \rightarrow y - x - 7 = 0$
 $d = \frac{|7|}{\sqrt{1+1}} = \frac{7}{\sqrt{2}}$
 $s_0 = \pi r^2 = \frac{9}{2} \pi$



$|MC| = \sqrt{14 + 16} = \sqrt{30}$
 $|CH| = \frac{|-1-2-7|}{\sqrt{2}} = \frac{10}{\sqrt{2}} = 5\sqrt{2}$
 $AB: -x + 2y = 7 \rightarrow x + 2y = 7$

$MHC: \angle MHC = \angle MHA + \angle CHA = \angle MCA$
 $MH^2 + \frac{16}{2} = 30 \rightarrow MH^2 = 10 \rightarrow MH = \sqrt{10}$

$(3m-2)x + (5-m)y - 7 = 0$
 $\alpha = \frac{3m-2}{m-5}$
 $(m+1)x - (3m-4)y + 1 = 0$
 $\alpha' = \frac{m+1}{3m-4}$

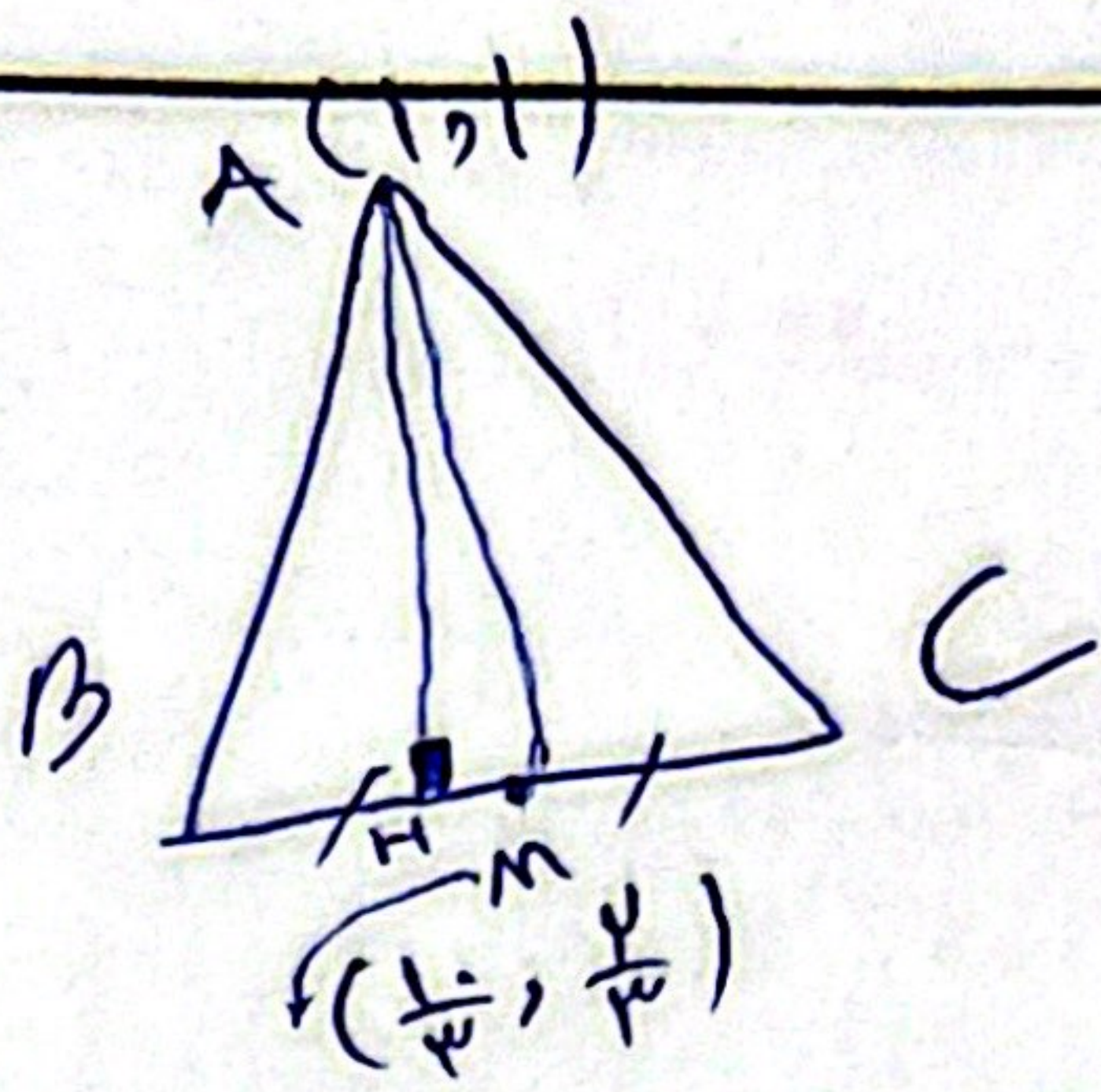
$\alpha \cdot \alpha' = -1$
 $\frac{3m-2}{m-5} \cdot \frac{m+1}{3m-4} = -1$
 $\frac{3m^2 + 3m - 2m - 2}{3m^2 - 15m - 4m + 20} = -1$
 $\frac{3m^2 + m - 2}{3m^2 - 19m + 20} = -1$
 $3m^2 + m - 2 = -3m^2 + 19m - 20$
 $6m^2 - 18m + 18 = 0$
 $2m^2 - 3m + 3 = 0$

مقدار مثبت برای
m وجود ندارد

$$AM: x + y = p$$

$$AC: y = x - 1$$

$$BC: x + y = r$$



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

$$|AH| = \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

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

$$C: AC \perp BC \Rightarrow r - 1 = r \Rightarrow r = 1$$

$$C\left(\frac{1}{2}, \frac{1}{2}\right)$$

$$A: \frac{AC}{AB} \Rightarrow x + (x - 1) = p \Rightarrow 2x - 1 = p \Rightarrow x = \frac{p+1}{2}$$

$$B: \frac{AB}{BC} \Rightarrow \frac{1}{y} = \frac{1}{x} \Rightarrow y = x \Rightarrow y = 1 \Rightarrow x = 1 \Rightarrow A(1,1)$$

$$B(a, -1)$$

$$m = -\frac{1}{p} \rightarrow -\frac{1}{p}x + b = y \rightarrow -\frac{1}{p}x - y + b = 0$$

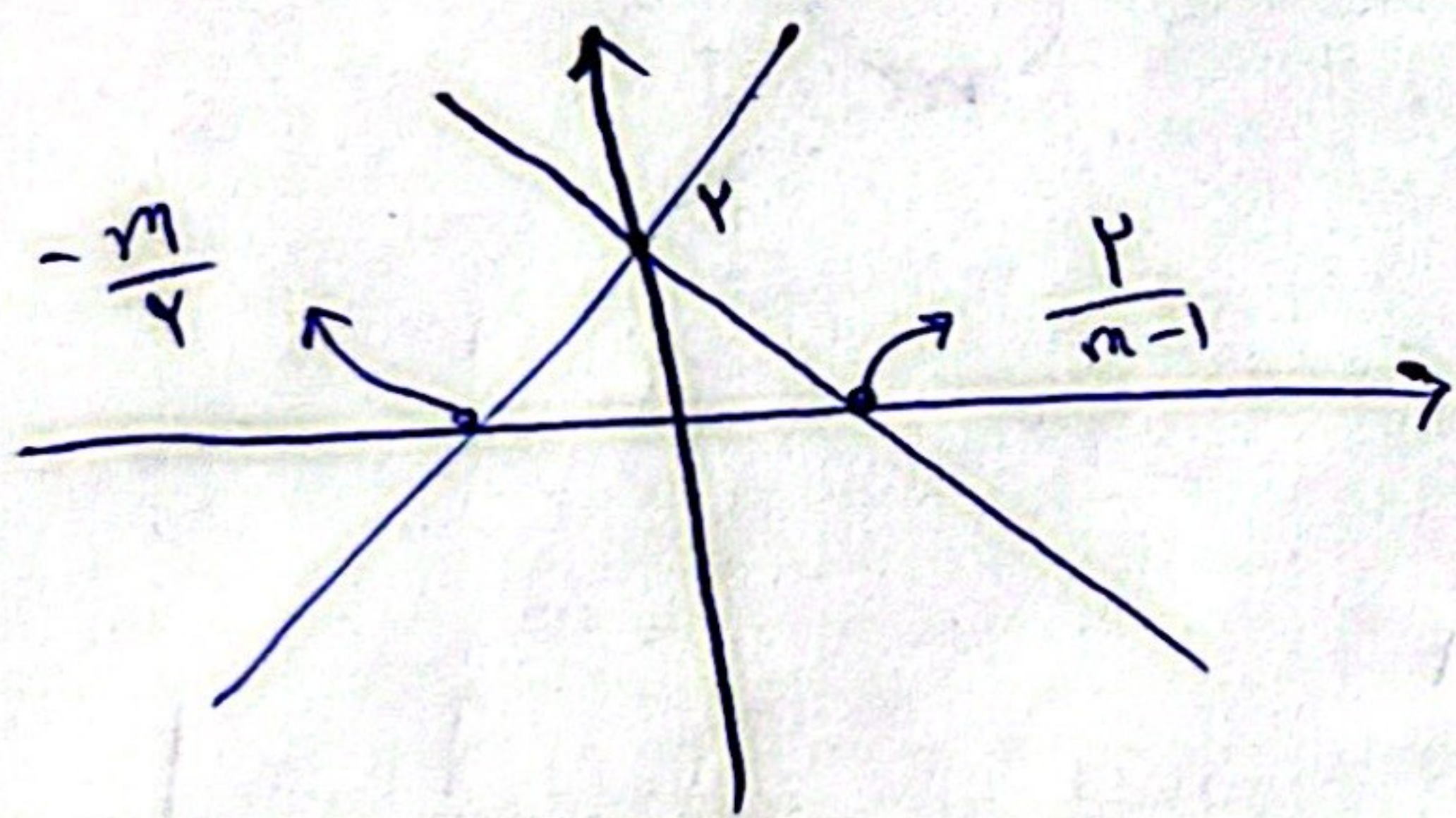
$$\frac{|b|}{\sqrt{\frac{1}{p^2} + 1}} = \frac{|b|}{\frac{\sqrt{p^2 + 1}}{p}} = \sqrt{p} \Rightarrow |b| = \omega$$

$$b = \omega \rightarrow -\frac{1}{p}x + \omega = y \xrightarrow{y=0} x = p \Rightarrow \frac{p}{\omega} = \frac{1}{\omega} \Rightarrow \omega = 1$$

$$b = -\omega \rightarrow -\frac{1}{p}x - \omega = y \xrightarrow{y=0} x = -p \Rightarrow \frac{-p}{-\omega} = \frac{1}{\omega} \Rightarrow \omega = 1$$

$$y = 0 \Rightarrow y + mx = x + p \Rightarrow y = (1-m)x + p$$

$$my - rx = pm \Rightarrow my = rx + pm \Rightarrow y = \frac{r}{m}x + p$$



$$s_{\Delta} = \frac{p \times a}{2} = \frac{\omega}{2}$$

$$a = \frac{\omega}{p}$$

$$\frac{p}{p-1} + \frac{m}{p} = \frac{a}{p} = \frac{\omega}{p}$$

$$\frac{p}{p-1} + \frac{m}{p} = \frac{\omega}{p} \Rightarrow \frac{p^2 + m(p-1)}{p(p-1)} = \frac{\omega}{p} \Rightarrow \frac{p^2 + mp - m}{p(p-1)} = \frac{\omega}{p}$$

$$x' = r - x \Rightarrow x = r - x'$$

$$y' = -r - y \Rightarrow y = -r - y'$$

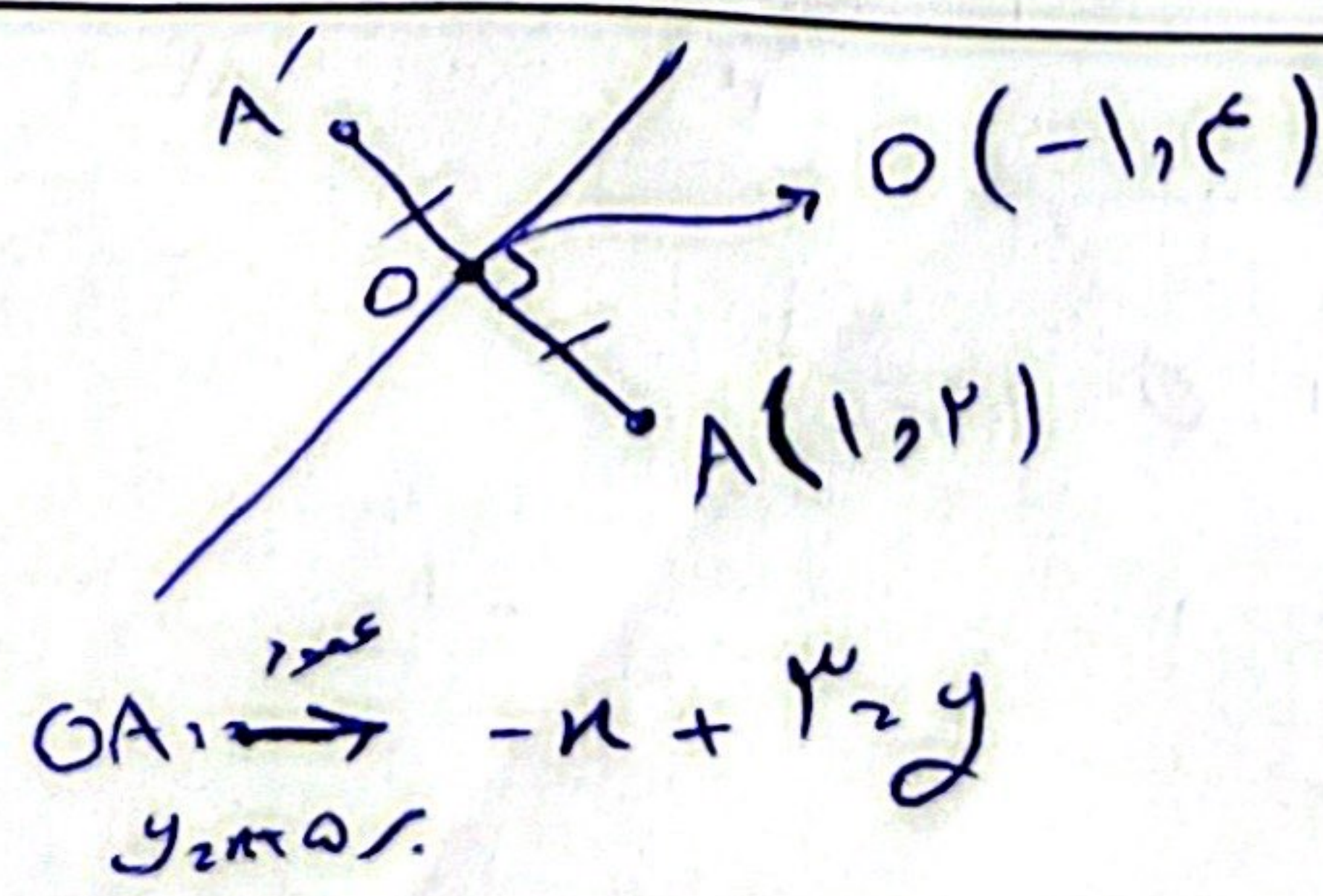
$$x = r - x' \Rightarrow y = -r - y'$$

$$-r - y' = x - p \Rightarrow y' = p - x - r$$

$$y = p - x - r$$

$$p_m = \frac{r}{x} - 1 = \frac{p}{r}$$

$$A(1,2) \xrightarrow{\text{تقریباً}} y = x + \omega$$



$$A'(-2,1)$$

$$A'(-3,0)$$

$$yb - ax = 1 \times 2 - 1 \times 1 = 1$$

$$y = x + 1 \Rightarrow x = y - 1 \Rightarrow x = -1 \Rightarrow y = 0 \Rightarrow O(-1,0)$$