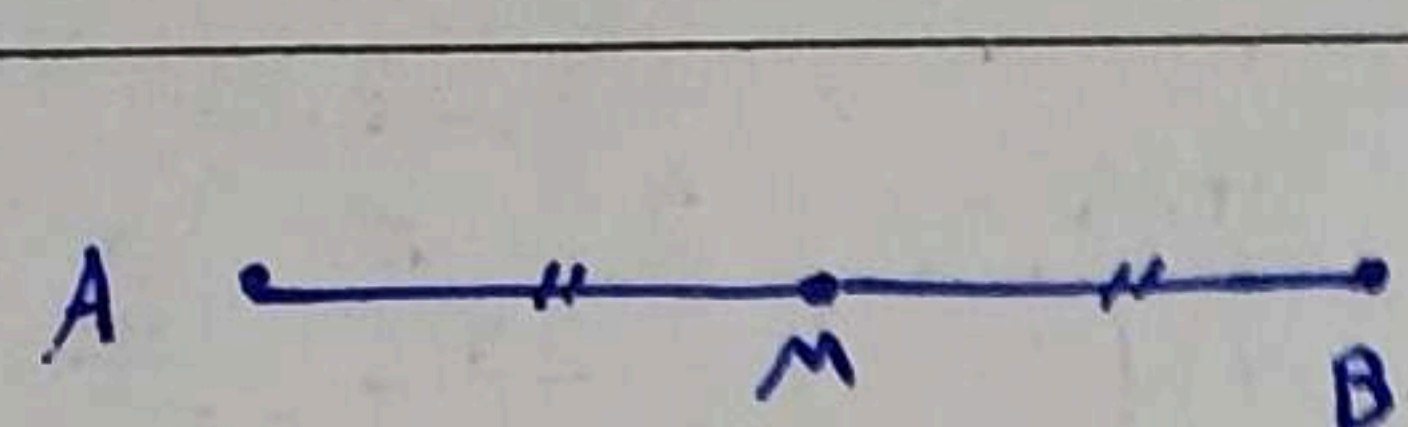


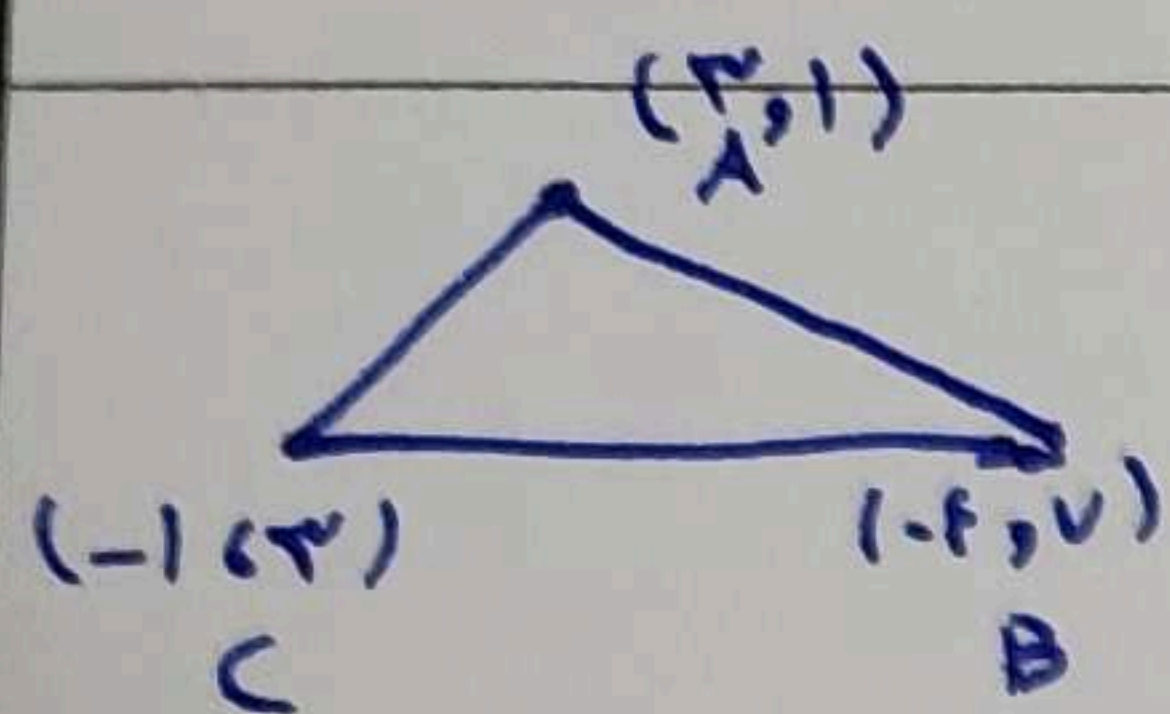


$$M = \left(\frac{2+f}{2}, \frac{1-f}{2} \right) = (3, 1)$$

$$m = \frac{1-f}{-2} = -\frac{1}{2} \rightarrow m' = \frac{1}{2} \rightarrow y = \frac{1}{2}x + h = 1 = \frac{3}{2} + h \rightarrow h = -\frac{1}{2}$$

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

۱



$$BC = \sqrt{3^2 + 4^2} = 5$$

$$m_{BC} = -\frac{4}{3} \rightarrow m_{AH} = \frac{3}{4}$$

$$AH = \sqrt{\frac{3^2}{20} + 16} = \frac{\sqrt{400}}{20} = \frac{20}{20} = 1$$

$$y_{AH} = \frac{3}{4}x + h \rightarrow 1 = \frac{3}{4} + h \rightarrow h = -\frac{1}{4} \rightarrow y = \frac{3}{4}x - \frac{1}{4} = -\frac{1}{4}x + \frac{1}{4}$$

$$y_{BC} = -\frac{4}{3}x + h \rightarrow 3 = -\frac{4}{3} + h \rightarrow h = \frac{13}{3} \rightarrow y = -\frac{4}{3}x + \frac{13}{3} \rightarrow \frac{20}{12}x = \frac{13}{3} \rightarrow x = \frac{39}{20} = \frac{1}{2}$$

$$y = -1$$

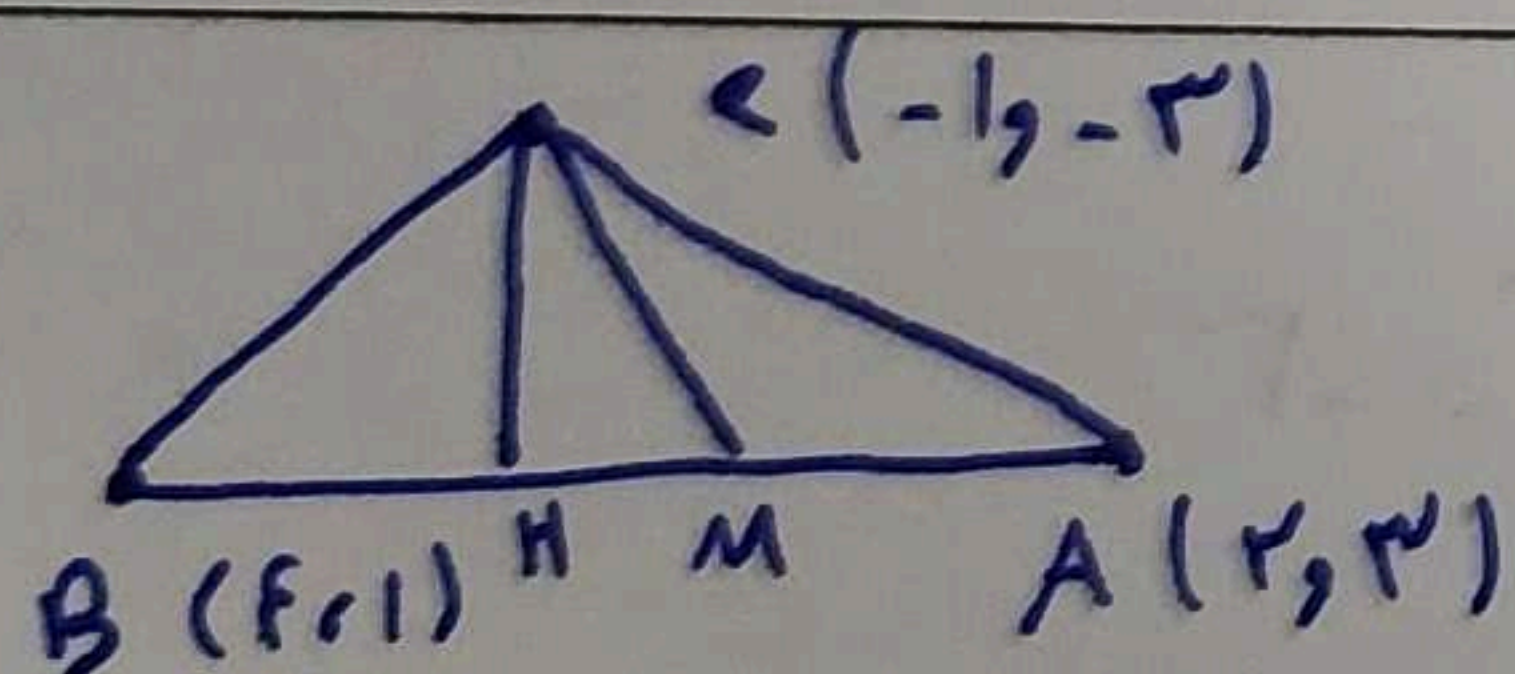
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$$\begin{cases} 2y - x = 1 \\ 4y - 3x = 2 \end{cases} \Rightarrow a = 2$$

$$m_{AB} = \frac{|14-2|}{\sqrt{20}} = \frac{12}{\sqrt{20}} = \frac{6}{\sqrt{5}} \xrightarrow{\text{مربع}} r = \frac{3}{\sqrt{5}}$$

$$S = \pi r^2 \rightarrow S = \pi \times \frac{9}{5} = \frac{9\pi}{5}$$

۳



$$M = \left(\frac{2+f}{2}, \frac{3-f}{2} \right) = (3, 2)$$

$$n = \text{مقدار} (3, 2), (3, 4), (1, 4) \rightarrow \sqrt{\frac{1}{4} + \frac{1}{4}} = \sqrt{\frac{1}{2}}$$

$$m_{AB} = \frac{2}{-1} = -2 \rightarrow m_{HC} = 1 \rightarrow -3 = 1x + h \rightarrow h = -4 \rightarrow y = x - 4$$

$$BC \rightarrow 1 = -4 + h \rightarrow h = 5 \rightarrow y = -x + 5 \rightarrow x - 2 = -x + 5 \Rightarrow x = \frac{7}{2}$$

$$y = 1.5$$

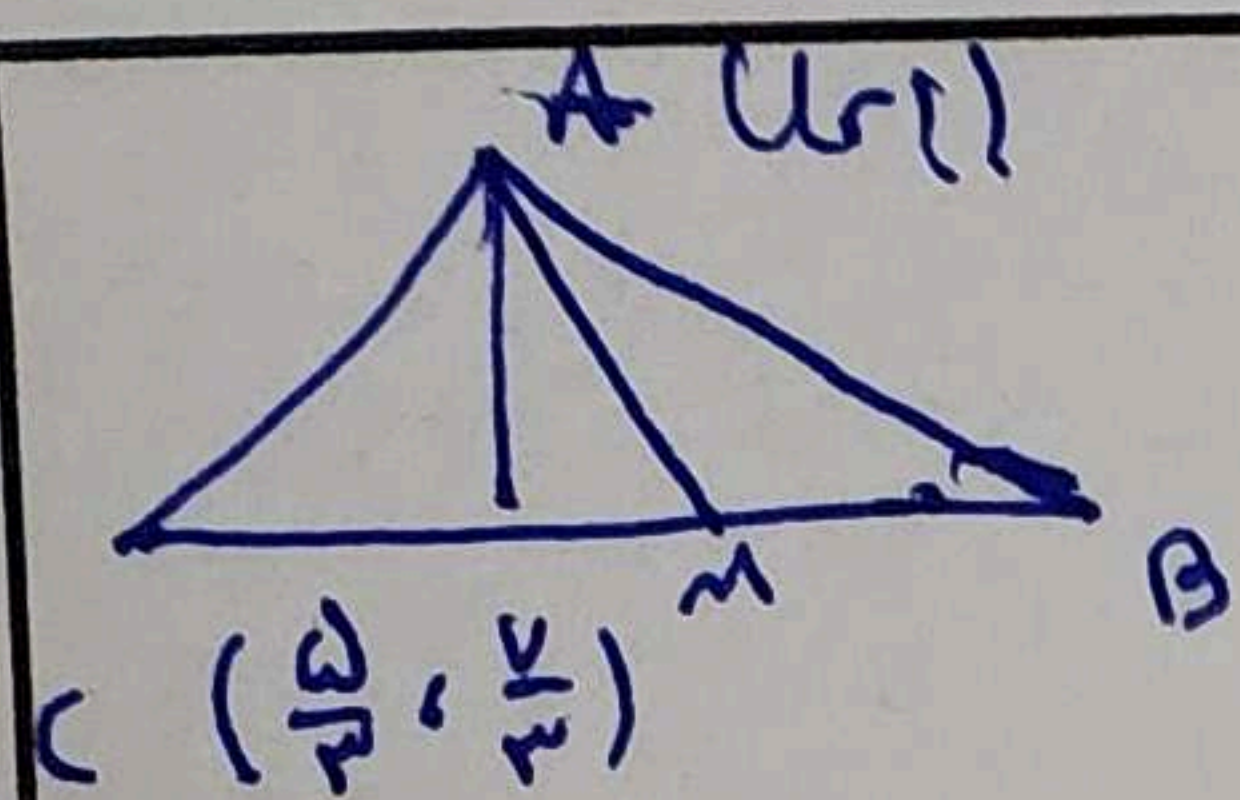
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$$m = \frac{-3m+2}{-m+4} = \frac{2m-4}{-m-1} \rightarrow 3m^2 + m - 2 = -2m^2 + 14m - 2$$

$$\rightarrow 5m^2 - 13m + 1 = 0$$

$\Delta < 0 \rightarrow$ جواب ندارد
و به ازای هیچ
مقدار x نمی شود

۵



$$A \Rightarrow r_{x-1} = \frac{r-x}{y} \rightarrow r-x = r-x \rightarrow x=1, y=1$$

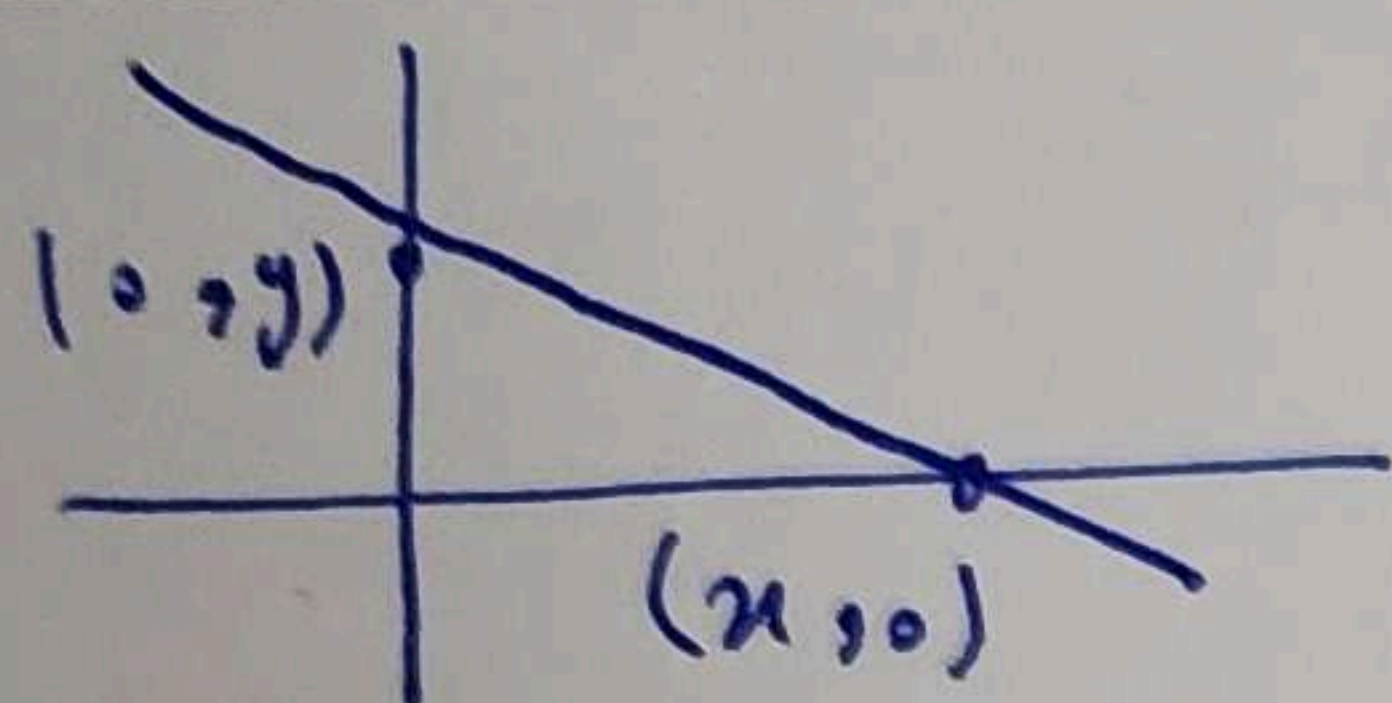
$$B \Rightarrow r-x = \frac{r-x}{y} \rightarrow 1-r = r-x \rightarrow x=d, y=-1$$

$$BC \Rightarrow r_{x-1} = r-x \rightarrow r_x = d \quad x = \frac{d}{r}, y = \frac{y}{r}$$

$$\frac{AM}{AH} = \frac{d \sqrt{\frac{r}{y}}}{\sqrt{1-r}} = \frac{d}{\sqrt{r}}$$

$$M_{BC} = -1 \rightarrow y = -x+h \rightarrow m_{AH} = 1 \rightarrow y = x+h \xrightarrow{1,2} h=0 \rightarrow y=x$$

$$M = \left(\frac{d + \frac{d}{r}}{y}, \frac{-1 + \frac{y}{r}}{y} \right) = \left(\frac{1}{r}, \frac{y}{r} \right) \quad AH = \sqrt{r} \quad AM = \sqrt{\left(\frac{y}{r}\right)^2 + \left(\frac{1}{r}\right)^2} = \sqrt{\frac{d}{r}}$$



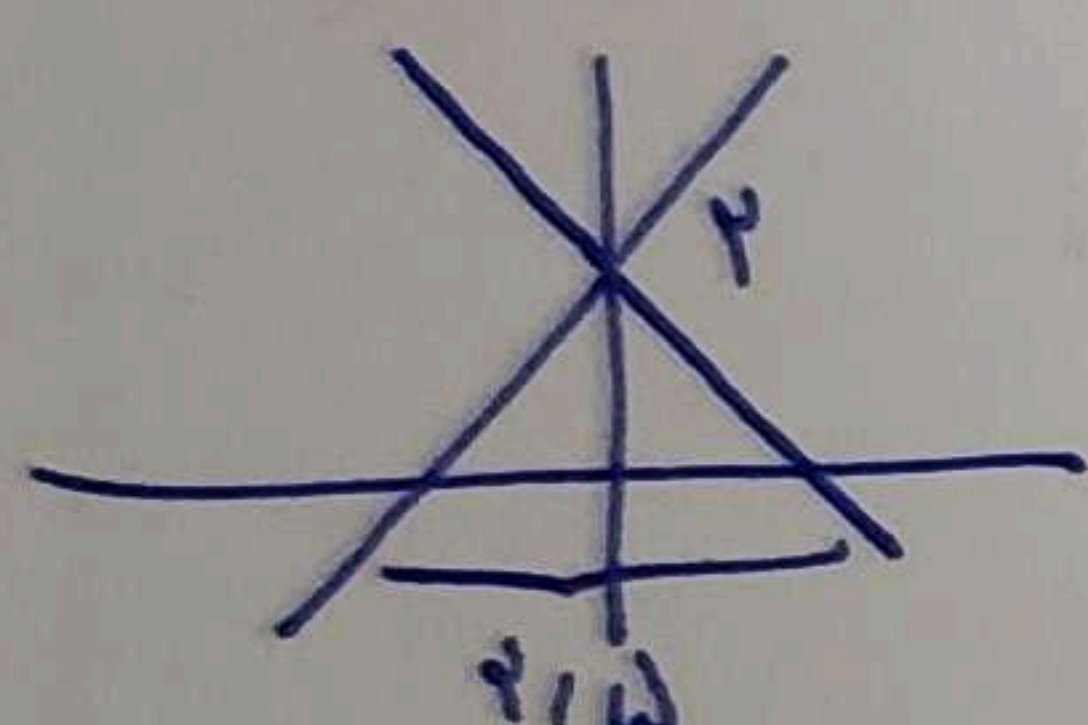
$$y = -\frac{1}{r}x + h \quad \sqrt{\frac{1}{r}} = \frac{h}{\sqrt{\frac{1}{r} + 1} \cdot \frac{d}{r}} \rightarrow \frac{\sqrt{1+r}}{r} = h \rightarrow h=d$$

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

$$A = (0, d)$$

$$B = (1, 0)$$

$$AB = \sqrt{1 + r^2 d^2} = d \sqrt{1+r} \rightarrow 0 = -\frac{1}{r}x + d \rightarrow x=1$$



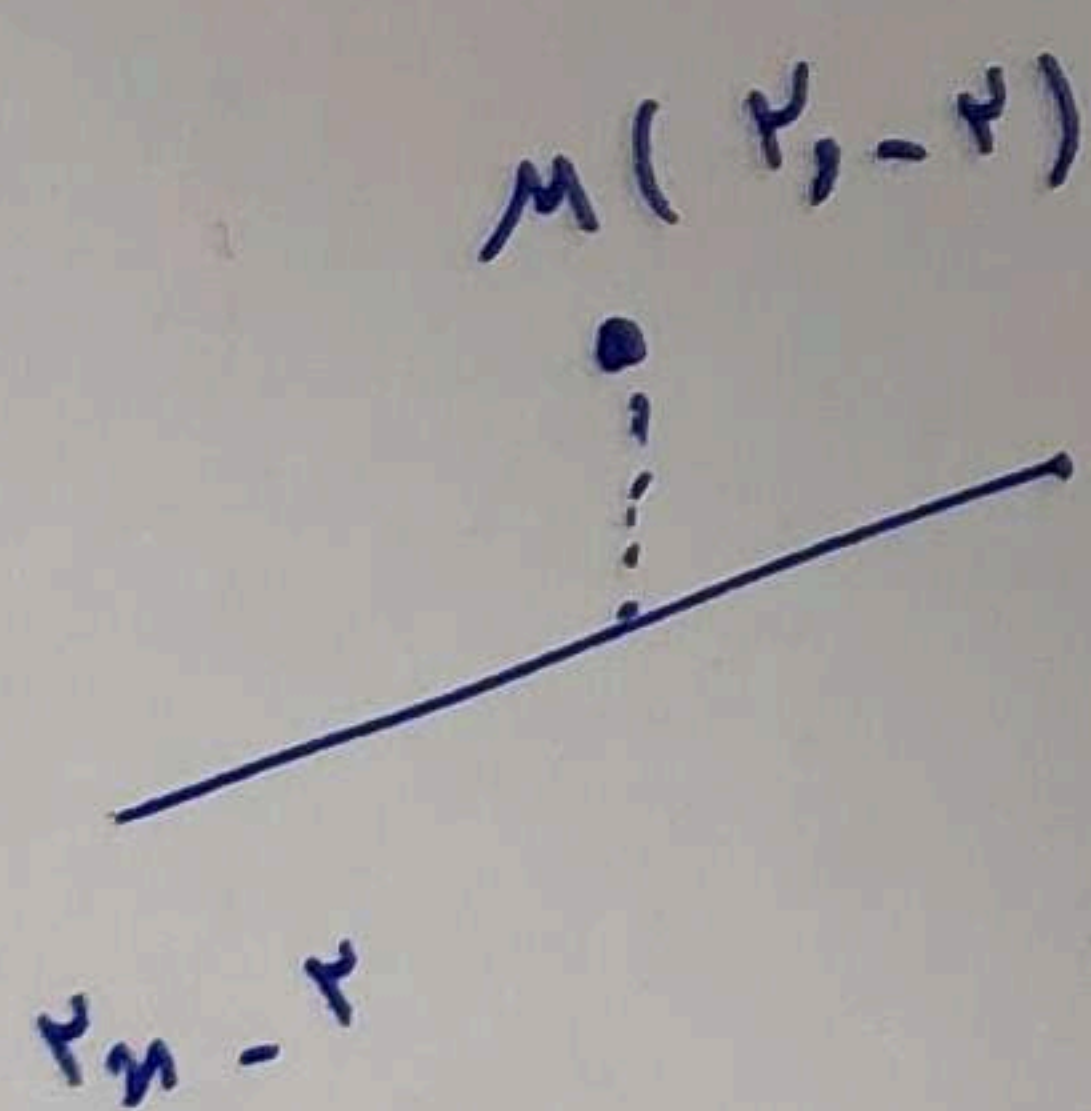
$$y = 0 \rightarrow -\frac{1}{r}x + d = 0 \rightarrow x = -\frac{1}{r}d$$

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

$$\frac{r}{m-1} + \frac{1}{r}d = \frac{d}{r} \rightarrow \frac{r}{m-1} + m = d \rightarrow r + m^2 - m = d(m-d)$$

$$m^2 - 5m + 4 = 0 \quad (m-4)(m-1) = 0$$

↓
r



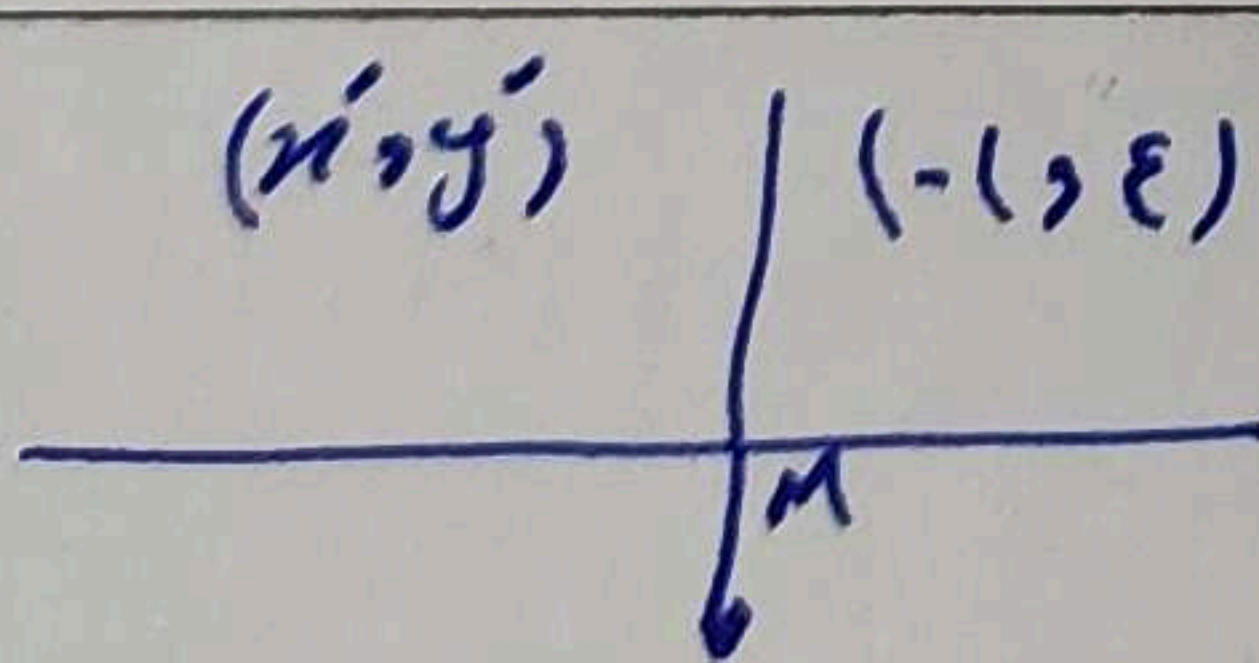
$$x=1, y=-1 \Rightarrow (1, -1)$$

$$r = \frac{1+x'}{y} \rightarrow x' = r$$

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

$$y = 2x + h \xrightarrow{(1, -1)} -r = 2 + h \rightarrow h = -r-2$$

$$y = 2x - 9$$



$$A(1, 2)$$

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

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

$$-\frac{1}{x} + r = x + d \rightarrow -r = x + \frac{1}{x} \rightarrow -r = \frac{x^2 + 1}{x}$$

$$x^2 + 1 + rx = 0 \rightarrow (x+1)^2 = 0 \rightarrow x = -1, y = r$$

$$-r = 1 + x' \rightarrow x' = -r-1 \rightarrow A = r + y' \rightarrow y' = -r$$

$$A'(a, b) = (-r, y) \rightarrow rb - a = 1 + r = 1 + d$$