

1 خطای رجبی، باز هم فرض A: نصف 12

2 (1) M وسط AB قرار دارد: $M\left(\frac{2+\varepsilon}{2}, \frac{1-\varepsilon}{2}\right)$

3 خطای رجبی نقطه $(2, -1)$ از مرکز و شیب $\frac{1}{\sqrt{5}}$ است

$$y - 1 = \frac{1}{\sqrt{5}}(x - 2) \Rightarrow y = \frac{x}{\sqrt{5}} - \frac{1}{\sqrt{5}} \quad 4$$

$$BC: \sqrt{9+14} = 5 \quad / \quad BC \text{ معادله: } \frac{x^2}{4} = \frac{-5}{3} \quad 6$$

$$\Rightarrow y - 2 = -\frac{3}{5}(x + 1) \Rightarrow y = -\frac{3x}{5} + \frac{7}{5} \quad 7$$

8 (2) AH معادله: شیب $\frac{3}{4}$ (تربیب دایره BC)

$$y - 1 = \frac{3}{4}(x - 2) \Rightarrow y = \frac{3}{4}x - \frac{1}{2} \quad 9$$

$$\text{نقطه تقاطع H: } -\frac{2x}{3} + \frac{7}{5} = \frac{3}{4}x - \frac{1}{2} \Rightarrow \frac{5-3x}{3} = \frac{3x-2}{4} \quad 11$$

$$4(5-3x) = 3(3x-2) \Rightarrow 20-12x = 9x-6 \Rightarrow 26 = 21x \Rightarrow x = \frac{26}{21} \quad 12$$

$$AH \text{ طول: } \frac{3}{4}\left(\frac{26}{21}\right) - \frac{1}{2} = -\frac{1}{21} \quad \text{و } x = \frac{26}{21} \quad \text{پس } AH = \frac{26}{21} \quad 13$$

$$\Rightarrow H\left(\frac{26}{21}, -\frac{1}{21}\right) \Rightarrow AH \text{ طول: } \sqrt{\frac{4 \times 5}{21^2} + \frac{1}{21^2}} = \frac{\sqrt{21}}{21} \quad 14$$

$$\rightarrow BC - AH = 5 - \frac{\sqrt{21}}{21} \quad 16$$

$$2y = \frac{2}{\sqrt{5}}x + \frac{2}{\sqrt{5}} \quad \frac{-a}{-1} = \frac{\varepsilon}{1} \Rightarrow a = \varepsilon \quad 18$$

$$2y = x + \sqrt{5} \quad x^2 + \varepsilon y = 1 \quad 19$$

$$\text{طول دایره: } \frac{14-2}{\sqrt{5+14}} = \frac{12}{\sqrt{19}} \Rightarrow 2 = \frac{c\sqrt{5}}{a} \quad 20$$

$$5 = \frac{c^2}{a^2} \Rightarrow \frac{c}{a} = \sqrt{5} \quad 21$$



$$1 \quad AB \leq \sqrt{r+r} \leq r\sqrt{2}, \text{ since } M \Rightarrow BM \leq r \quad (1)$$

$$3 \quad BH^2 \leq BC^2 - CH^2 \quad r^2 - r^2 \omega^2 \leq r^2 \omega^2 \Rightarrow BH \leq \frac{1}{\sqrt{2}} \cdot \frac{r}{\sqrt{2}} \quad (2)$$

$$5 \quad BC = \sqrt{2a+1}r, \sqrt{r^2}, CH = \frac{a}{r}$$

$$7 \quad AB: m \leq \frac{r}{-r} \leq -1 \rightarrow y-1 \leq -1(2-\varepsilon) \rightarrow y \leq -2+a \rightarrow y+2 \leq a.$$

$$8 \quad AB \text{ is } \leq \frac{1-1-\varepsilon-a}{\sqrt{1+1}} \leq \frac{1-1}{\sqrt{2}} \leq \frac{a}{r}$$

$$10 \quad (1), (2): r \leq \frac{r}{r} \leq \frac{r}{r} \leq HM$$

$$12 \quad (m+1)a+1 \leq (r_m-\varepsilon)y \quad m \leq \frac{-1}{m'}$$

$$13 \quad -(r_m-r)a+y \geq (a-m)y \rightarrow \frac{m+1}{r_m-\varepsilon} \leq \frac{a-m}{r_m-r}$$

$$15 \rightarrow (m+1)(r_m-r) \leq (r_m-\varepsilon)(a-m)$$

$$16 \quad r_m^2 + m - r \leq r_m^2 + 1 \varepsilon m - r \rightarrow am^2 - 1r_m + 1$$

17 ΔC ...

$$19 \quad \text{...} \quad -\frac{a}{r} + \frac{r}{r} \leq r_m - 1 \rightarrow -\frac{a}{r} + 1 \leq r_m - 1$$

$$20 \quad A \quad a \geq a \rightarrow a \leq 1, y \leq 1$$

$$21 \quad AH \leq \frac{1+1-\varepsilon}{\sqrt{1+1}} \leq \frac{r}{\sqrt{2}} \leq \sqrt{r}$$

13 B : $\frac{-x}{2} + \frac{x^2}{2} - x + \varepsilon \xrightarrow{\Delta^2} -x + x^2 - 2x + 1$: y^2 13

14 $\rightarrow x \text{ و } y, y = 1$ 14

15 $C \sim : 2x - 2x - x + \varepsilon \rightarrow 2x \text{ و } x \rightarrow x \text{ و } y, y = 1/c$ 15

16 $B : | \omega, C | \frac{\omega}{\sqrt{c}} \rightarrow M(\frac{10}{3}, \frac{4}{3})$ 16

17 $AM \text{ و } \sqrt{\frac{49}{9} + \frac{1}{9}} \text{ و } \frac{\Delta \sqrt{2}}{3} \rightarrow \frac{AM}{AH} \text{ و } \frac{\Delta \sqrt{2}/c}{\sqrt{2}} \text{ و } \frac{\omega}{3}$ 17

18 18

19 $y \text{ و } ax + b \rightarrow -1/2 x + b = y \text{ و } \frac{|b|}{\sqrt{1/2 + 1}} \text{ و } \frac{|b|}{\sqrt{5/2}} \text{ و } \sqrt{2} \rightarrow |b| \text{ و } \omega$ 19

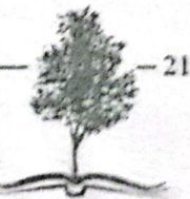
20 $(0, b) \star$ 20

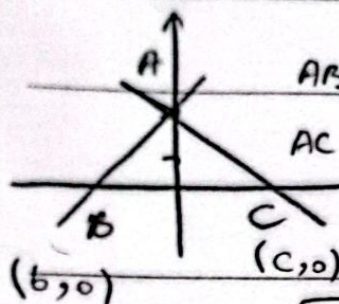
21 $-1/2 x + b \xrightarrow{(a, 0)} -1/2 a + b \text{ و } \rightarrow b \text{ و } 1/2 a \star = \gamma |a| \text{ و } 1$ 21

در حضور با هم

$AB \text{ و } \sqrt{1 + 2\omega} \text{ و } \omega \sqrt{\omega}$

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$$AB: my - \varepsilon x \leq r \rightarrow y \leq \frac{r}{m} x + \frac{\varepsilon}{m}$$

$$AC: y + m x \leq r \rightarrow y \leq (1-m)x + r$$

$$\sqrt{(b-c)^2} \leq |b-c| \leq \frac{\omega}{r}$$

$$B \text{ : } \frac{\varepsilon}{m} x + \frac{\varepsilon}{m} \leq r \rightarrow x \leq \frac{r-m}{\varepsilon} \text{ , } y \leq \frac{-m}{r}$$

AB ضا

$$C \text{ : } (1-m)x + r \leq r \rightarrow x \leq \frac{r}{m-1} \text{ , } y \leq \frac{r}{m-1}$$

$$\star \rightarrow \left| \frac{-m}{r} - \frac{r}{m-1} \right| \leq \frac{r-m}{r}$$

$$\textcircled{1} \quad \frac{-m^2+m-\varepsilon}{r(m-1)} \leq \frac{r-m}{r} \rightarrow -m^2+m-\varepsilon \leq (r-m)(m-1)$$

$$-m^2 - \varepsilon m + 1 \leq 0 \rightarrow m \leq \frac{\varepsilon + \sqrt{\varepsilon^2 + 4}}{2}$$

$$-r + \sqrt{a} \text{ , } -r - \sqrt{a} \rightarrow (-1) \leq \frac{-r}{\varepsilon}$$

$$\textcircled{2} \quad \frac{+m^2-m+\varepsilon}{r(m-1)} \leq \frac{r-m}{r} \rightarrow m^2-m+\varepsilon \leq (r-m)(m-1)$$

$$m^2 - 4m + 9 \leq (m-1)^2 \rightarrow m \leq 1$$

U
for

$$\leq -1$$

$$y \leq rx - \varepsilon \rightarrow rx - y \leq \varepsilon$$

$$y \leq rx + \varepsilon \rightarrow rx - y \leq -\varepsilon$$

$$ax + by \leq \frac{c+c'}{r} \rightarrow rx - y \leq \frac{r-c}{r} \text{ , } \frac{r-c}{r} \leq \frac{r-c}{r}$$

$$\Rightarrow y \leq rx - c$$

$$c \leq -9$$

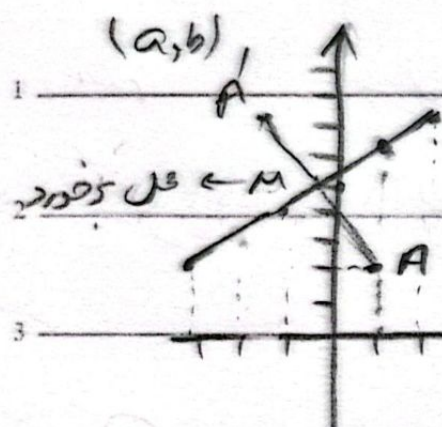
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Am s - 1 (قریب و بعد میں صم)

(1.

$$\rightarrow y - r s - 1(n-1) \rightarrow y s - a + r$$

(2)

$$AA' \perp M \rightarrow M\left(\frac{a+r}{2}, \frac{b+r}{2}\right) \text{ s } (-1, \epsilon)$$

$$\Rightarrow a s - r \quad b s \quad y$$

$$M \text{ 's' } \rightarrow -a + r \text{ s } a + a \rightarrow a s - 1, y \text{ s } \epsilon$$

$$\rightarrow A'(-c, y) \rightarrow r b - a \text{ s } 1r - (-r) \text{ s } 1w$$