

۱۹,۵

نام و نام خانوادگی یازدهم

$$|a_1 - 1| \geq 0 \Rightarrow \frac{1}{a_1 - 1} > 0 \Rightarrow a_1 > 1 \rightarrow |a_1 - 1| = a_1 - 1$$

$$\rightarrow \frac{1}{a_1 - 1} = a_1 - 1 \rightarrow a_1^2 - 2a_1 + 1 = 1 \rightarrow a_1^2 - 2a_1 = 0 \Rightarrow a_1(a_1 - 2) = 0$$

$$\rightarrow a_1 < 0 \times (a_1 > 1) \Rightarrow a_1 = \{2\}$$

$$\text{الف) } -2 < \frac{p_{m-1}}{a_1} < 2 \rightarrow \frac{p_{m-1}}{a_1} < 2 \rightarrow \frac{p_{m-1}}{a_1} - 2 < 0 \rightarrow \frac{-1}{a_1} < 0 \rightarrow a_1 > 0 \quad (I)$$

$$-2 < \frac{p_{m-1}}{a_1} \rightarrow 0 < \frac{p_{m-1}}{a_1} + 2 \rightarrow 0 < \frac{2a_1 - 1}{a_1} + \frac{1}{2} + \frac{1}{2} \rightarrow (-\infty, 0) \cup (\frac{1}{2}, +\infty)$$

$$I \cap II \Rightarrow a_1 = (\frac{1}{2}, +\infty)$$

$$\text{ب) } \frac{a_1 - 2}{p_{m+1}} > 1 \rightarrow \frac{a_1 - 2 - p_{m+1}}{p_{m+1}} > 0 \rightarrow \frac{-a_1 - 3}{p_{m+1}} > 0 \rightarrow \frac{-3}{-\frac{1}{2} + \frac{1}{2}} \Rightarrow (-3, -\frac{1}{2})$$

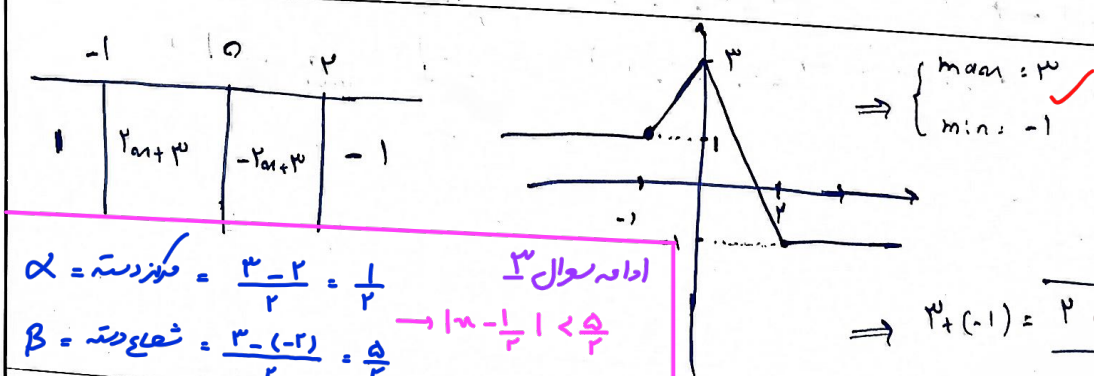
$$\frac{a_1 - 2}{p_{m+1}} < -1 \rightarrow \frac{a_1 - 2 - p_{m+1}}{p_{m+1}} < 0 \rightarrow \frac{p_{m-1}}{p_{m+1}} < 0 \rightarrow \frac{-\frac{1}{2}}{-\frac{1}{2} + \frac{1}{2}} \Rightarrow (-\frac{1}{2}, \frac{1}{2}) \cup (-3, -\frac{1}{2}) \cup (-\frac{1}{2}, \frac{1}{2})$$

$$a_1^2 < a_1 + 4 \rightarrow a_1^2 - a_1 - 4 < 0 \rightarrow \frac{-1 \pm \sqrt{17}}{2} \rightarrow (-3, 2)$$

$$a_1 + 4 < -a_1^2 \rightarrow a_1^2 + a_1 + 4 < 0 \rightarrow \Delta < 0, a > 0 \Rightarrow \text{موجب ندارد}$$

$$\Rightarrow -3 < a_1 < 2 \rightarrow |a_1 - \alpha| < \beta \rightarrow -\beta < a_1 - \alpha < \beta \rightarrow -\beta + \alpha < a_1 < \beta + \alpha$$

$$\Rightarrow \begin{cases} \beta + \alpha = 2 \\ -\beta + \alpha = -2 \end{cases} \xrightarrow{+} 2\alpha = -1 \rightarrow \alpha = -\frac{1}{2}$$



$$\alpha = \text{میزدسته} = \frac{3-2}{2} = \frac{1}{2}$$

$$\beta = \text{شعبه صفت} = \frac{3-(-2)}{2} = \frac{5}{2} \rightarrow |a_1 - \frac{1}{2}| < \frac{5}{2}$$

$$y = \left| \frac{a_1}{2} \right| - 2$$

$$y' = \left| \frac{a_1 + 2}{2} \right| - 1 \Rightarrow \left| \frac{a_1}{2} \right| - 2 = \left| \frac{a_1 + 2}{2} \right| - 1 \rightarrow \left| \frac{a_1}{2} \right| = \left| \frac{a_1 + 2}{2} \right| + 1$$

$$a_1 > 0 \rightarrow \frac{a_1}{2} = \frac{a_1 + 2}{2} + 1 \rightarrow 0 \neq 3 \times$$

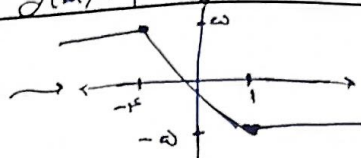
$$-\frac{1}{2} < a_1 < 0 \rightarrow \frac{-a_1}{2} = \frac{a_1 + 2}{2} + 1 \rightarrow a_1 = -3 \checkmark$$

$$a_1 < -\frac{1}{2} \rightarrow \frac{-a_1}{2} = \frac{-a_1 - 2}{2} - 1 \rightarrow 0 \neq -3 \times$$

$$f(x) = |x| - |x+2|$$

الف)

$$\omega \quad -\frac{1}{2} \quad 1$$



$$R' = [-\omega, \omega]$$

$$R = \{-\omega, -\frac{1}{2}, -1, -\frac{1}{2}, \omega\}$$

21

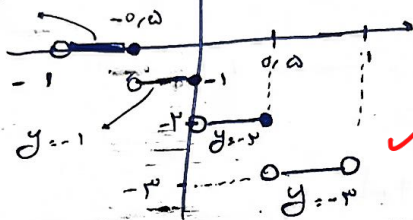
$$\therefore \left[\frac{a_1+1}{a_1} \right] = \left[1 + \frac{1}{a_1} \right] = 1 + \left[\frac{1}{a_1} \right]$$

$$\rightarrow f(x) = \frac{1}{x} - \left[\frac{1}{x} \right] - 1 \rightarrow R = [-1, 0)$$

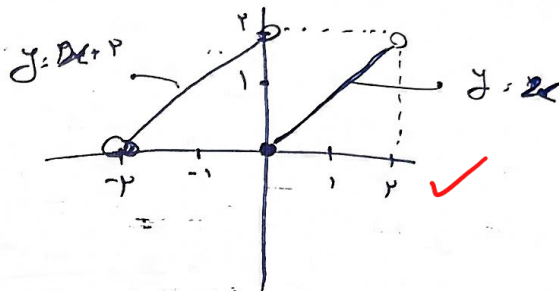
$$R = [0, 1)$$

الف)

$$y = 0$$

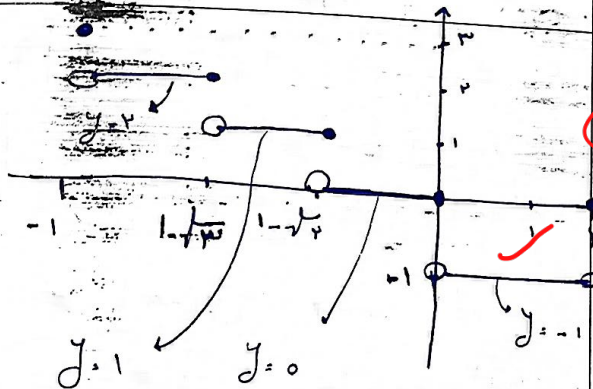
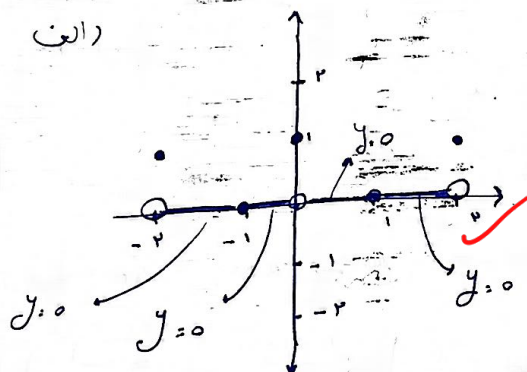


$$y = r \left(\frac{a_1}{r} - \left[\frac{a_1}{r} \right] \right)$$



21

الف)



21

$$\begin{aligned} a + [b] : \varepsilon, r &\rightarrow a : \dots, r \Rightarrow [a] + [b] : r \\ b - [a] : r, \varepsilon &\rightarrow b : \dots, \varepsilon \Rightarrow [b] - [a] : r \end{aligned} \quad \left. \begin{aligned} [b] = r &\Rightarrow b : r, \varepsilon \\ [a] = 1 &\Rightarrow a : 1, r \end{aligned} \right\}$$

21

$$\rightarrow a + b : \boxed{r, r}$$

$$1 < \sqrt{r} < 2 \rightarrow -1 < -\sqrt{r} < -2 \rightarrow 0 < 1 - \sqrt{r} < -1 \rightarrow 0 < (1 - \sqrt{r})^4 < 1$$

$$(1 + \sqrt{r})^9 = 19\wedge - \underbrace{(1 - \sqrt{r})^9}_{(0, 1)} \Rightarrow 19\vee < (1 + \sqrt{r})^9 < 19\wedge$$

$$\rightarrow \boxed{(1 + \sqrt{r})^9} = 19\vee$$

21

10