

به دلیل ننوشتن نام و نام خانوادگی نمره شما صفر لحاظ می‌گردد.

$$f(rn+1) + f(n+r) = r^n + f(r) \xrightarrow{n=1} f(r) + f(r) = r^n + f(r) \rightarrow f(r) = r^n$$

$$y = \sqrt{f(n) - n^2}$$

$$a(rn+1) + b + a(n+r) + b = rn + r$$

$$a(rn+r) + 2b = rn + r$$

$$ra + ra + 2b = r + r \quad f(n) = n$$

$$2a = 2 \quad b = 0$$

$$a = 1$$

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$$y = \sqrt{x - x^2} \xrightarrow{x = -\frac{b}{2a}} x = -\frac{1}{-2} = \frac{1}{2} \quad \sqrt{\frac{1}{4} - \frac{1}{4}} = \sqrt{\frac{1}{4}} = \frac{1}{2}$$

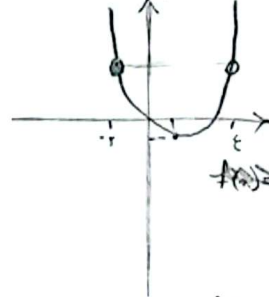
$$-x^2 + x \quad a < 0 \rightarrow \max R_f = \frac{1}{4} \quad |R_f = [\frac{1}{4}, \frac{1}{4}]|$$

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$$f(x) = \frac{x^2 - 4x}{x+2} \rightarrow \frac{x(x-4)(x+2)}{x+2} = x^2 - 4x \xrightarrow{x = -\frac{b}{2a}} -\frac{-4}{2} = 2 \rightarrow x - 2 = (-1)$$

$$D_f = \mathbb{R} - \{a, b\}$$

$$x^2 - 4x = (x-2)^2 - 4$$



$$R_f = [c, +\infty) - \{a\} \rightarrow [-1, +\infty) - \{1\}$$

$$f\left(\frac{a+b}{2c}\right) = 1$$

$$D_f = \mathbb{R} - \{-2, 2\}$$

$$\hookrightarrow f\left(\frac{-2+2}{-2}\right) = f(-1) = \frac{(-1)^2 - 4(-1)}{-1+2} = \frac{-1+4}{1} = 3$$

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$$f(n) \neq 1 \quad (n-1)^2 - 4 \neq 1$$

$$a = -4$$

$$b = 12$$

$$D_f = [-4, 12]$$

$$R_f = [-1, 1.7]$$

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$$y = \sqrt{a^2x^2 + bx + c} - x \rightarrow \sqrt{(x-r)^2} = x - r \Rightarrow \sqrt{a^2x^2 + bx + c} = x - r$$

$$D_f = [a, b]$$

$$x = x - r \xrightarrow{a=-r} y = -\varepsilon$$

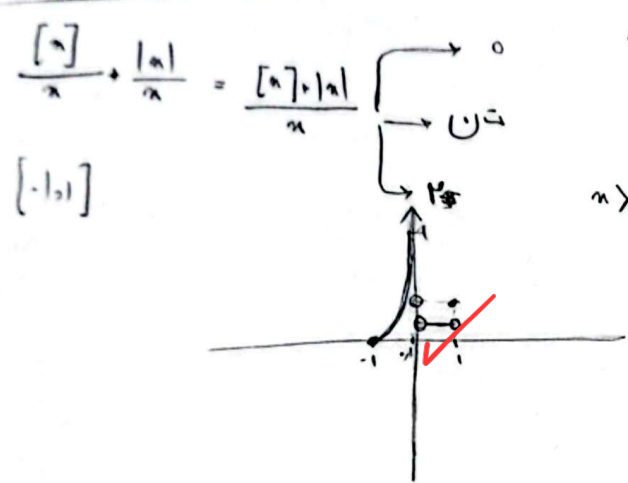
$$y = x - r \xrightarrow{a=\varepsilon} y = r$$

$$|R_f = [-\varepsilon, r]|$$

$$y_1 = \left(\frac{n+1}{1-n} \right)^{\frac{1}{a}} \xrightarrow{n \rightarrow 1} \frac{-1}{-1+1} = \frac{-1}{0} = \infty \quad D_{y_1} = [-1, 1)$$

$$y_r = \frac{an^r - 1}{n^r + b} \quad D_{y_r} = [-1, 1) \quad \begin{matrix} \xrightarrow{n \rightarrow 1} & \frac{-1}{b} = -1 \rightarrow b = 1 \\ \xrightarrow{n \rightarrow \infty} & a = 1 \end{matrix} \quad \begin{matrix} a+b = 1+1 = 2 \\ \checkmark a+b = r \end{matrix}$$

$$\frac{a\Delta + b}{c\Delta + d} \xrightarrow{\Delta \rightarrow \infty} \frac{a}{c} \quad \text{بما أن } \Delta \text{ كبير جداً}$$

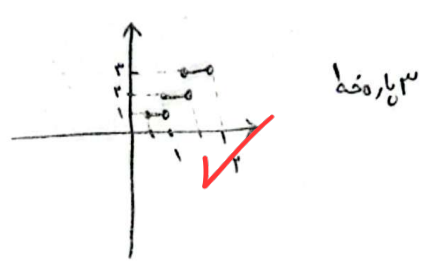


$$n < 0, n \in \mathbb{Z}, \quad -1 < n < 0 \rightarrow \frac{-1+|n|}{n} = \frac{-(n+1)}{n}$$

$$n > 0, n \in \mathbb{Z} \quad 0 < n < 1 \rightarrow \frac{|n|}{n} = 1$$

$$y = \left[n \right] + \left[\frac{n+1}{r} \right] \quad D_f = \left[\frac{1}{r}, r \right]$$

$$\begin{aligned} \frac{1}{r} < n < 1 &\rightarrow 0+1=1 \\ 1 < n < \frac{r}{r} &\rightarrow 1+1=2 \\ \frac{r}{r} < n < r &\rightarrow 1+r=r \end{aligned}$$



$$\left(\left| \frac{n+1}{an+r} \right| \right)^{\frac{1}{a}} < 1 \xrightarrow{-1 < \frac{n+1}{an+r} < 1} (n+1)^{\frac{1}{a}} - (an+r)^{\frac{1}{a}} < 0$$

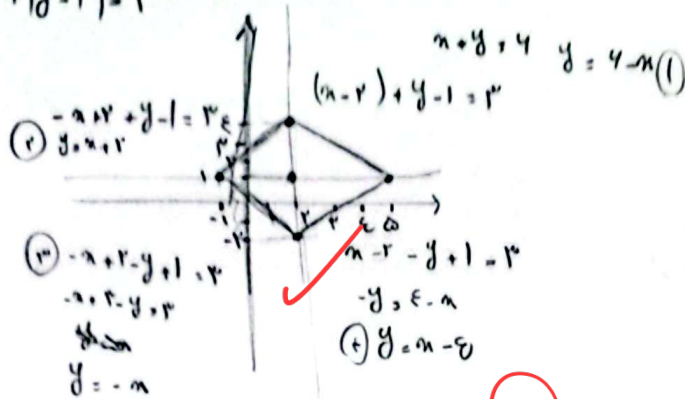
$$\frac{(1-a)n - r}{an+r} < 0$$

$$\frac{(1+a)n + r}{an+r} > 0$$

$$\frac{-\frac{r}{1-a}}{+\frac{r}{1-a}} \quad \frac{+\frac{r}{1-a}}{+\frac{r}{1-a}}$$

$$\begin{aligned} a &= 1 \\ b &= -r \\ a-b &= r \end{aligned}$$

$$|x-r| + |y-1| = r$$



$$\begin{aligned} 1=r &\rightarrow 4-x = x+r \\ r &= 1 \rightarrow x = 3 \\ 4-r &= 0 \end{aligned}$$

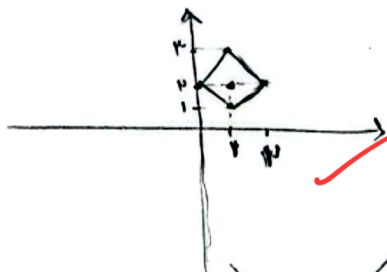
$$\begin{aligned} r=3 &\rightarrow x+r = -x \\ r &= 3 \rightarrow x = -3 \\ x &= -1 \end{aligned}$$

$$\begin{aligned} r=1 &\rightarrow -x = x-1 \\ r &= 1 \rightarrow x = 0 \\ x &= 1 \end{aligned}$$

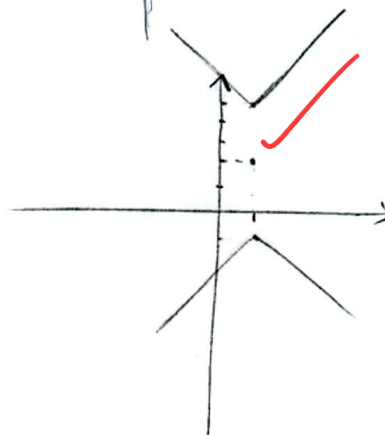
$$\begin{aligned} 1 &\rightarrow 4-x = x-1 \\ r &= 1 \rightarrow x = 2.5 \\ x &= 1 \end{aligned}$$

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$$w) |x-1| + |y-r| = 1$$



$$\begin{aligned} \rightarrow) |x-1| - |y-r| &= -1 \\ |y-r| - |x-1| &= 1 \\ y &= r \\ x &= 1 \end{aligned}$$



1.

$$y = r_m + |a_m + b| \rightarrow (a+r)m + b$$

$$\rightarrow (r-a)m - b$$

- ① $a+r > 0$ $-r < a$
- ② $a+r < 0$ $a < -r$
- ③ $r-a < 0$ $r < a$
- ④ $r-a > 0$ $a < r$

$$1, 2 \rightarrow \text{شیب مثبت} \quad a = 1R - \{r, 3\}$$

$$3, 4 \rightarrow \text{شیب منفی} \quad a < -r, a < r$$

زمانی برد را است که شیب طاق علامت باشد
 $m_1, m_2 > 0$ $-r < a < r$