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$$-2 \leq x \leq 2 \rightarrow -2 \leq \frac{x+2}{\infty} \leq 2 \rightarrow -1 \leq x+2 \leq 2 \rightarrow -3 \leq x \leq 1$$

$$D f\left(\frac{x+2}{\infty}\right) = [-3, 1]$$

(۲)

$$\xrightarrow{-2} x+2-2 = -2-2 = -4$$

$$\rightarrow D(f_{(2)}) = [-4, 2]$$

$$\xrightarrow{2} x+2-2 = 2-2 = 0$$

(۲)

$$\xrightarrow{-1} \frac{-x+1}{2} = -1$$

$$\rightarrow D f_{(2)} = [-1, \infty)$$

$$\xrightarrow{2} \frac{2+1}{2} = \frac{3}{2}$$

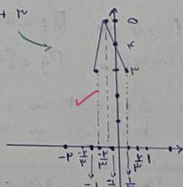
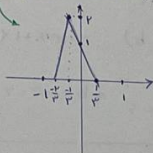
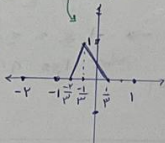
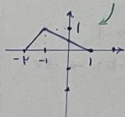
$$-1 \leq 2-x < \infty$$

$$\begin{cases} \omega x \leq 2 & x \leq \frac{2}{\omega} \\ \omega x > -2 & x > -\frac{2}{\omega} \end{cases}$$

$$D f(x-\infty) = \left[\frac{-2}{\omega}, \frac{2}{\omega}\right]$$

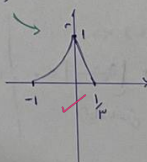
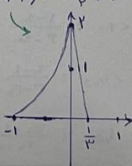
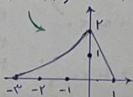
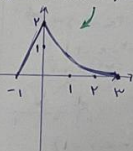
(۲)

$$f(x) \rightarrow f(x+1) \rightarrow f(x+1) \rightarrow 2f(x+1) \rightarrow 2f(x+1) + 2$$



(۲)

$$f(x) \rightarrow f(x+2) \rightarrow f(x+2) \rightarrow f(x+2) \rightarrow \frac{1}{2}f(x+2)$$



(۲)

$$y = \frac{1}{x} x^r + \frac{r}{x} x + 1 \rightsquigarrow y' = \frac{1}{x^2} (x - \frac{1}{x})^r + \frac{r}{x} (x - \frac{1}{x}) + 1 + \frac{1}{x} = \frac{1}{x^2} x^r + \frac{r}{x} x + 1$$

$$\frac{-b}{1a} = \frac{-\frac{r}{x}}{\frac{1}{x^2}} = \frac{r}{x}$$

$$-\frac{1}{x^2} x^r + \frac{r}{x} x + 1 = 0 \quad x = \frac{+2 \pm \sqrt{4+4}}{-\frac{r}{x}}$$

$$x = \frac{r}{x} \rightarrow y = \frac{r}{x}$$

$$y' = \left(\frac{1}{x} (x^r + \frac{r}{x} x + 1) \right) + b$$

$$x^r + a = \frac{r}{x} \rightarrow a = \frac{1}{x}$$

$$r + b = \frac{r}{x} \rightarrow b = \frac{r}{x}$$

$$1 - 2f(xn + 2)$$

$$f(xn + 2) \rightarrow f(xn + 2) \rightarrow$$

$$f(xn + 2) : \left| \frac{1}{x} \right| \Rightarrow f(1) = 1$$

$$x_{n+2} = 1 \Rightarrow x = \frac{1}{x} = x$$

$$1 - 2 \frac{f(1)}{x} = 1 - 2(-1) + 1 \Rightarrow y = -1 = \beta \Rightarrow \alpha \cdot \beta = \frac{1}{x} \cdot -1 = \frac{-1}{x}$$

$$\frac{-1}{x} \rightarrow \frac{-1}{x} + 1 = \frac{1}{x} \Rightarrow Df(x) = \left[\frac{1}{x}, \frac{1}{x} \right]$$

$$\frac{1}{x} \rightarrow \frac{1}{x} + 1 = \frac{1}{x}$$

در تابع y نیز $f(x)$ ضربی برابر
بیشترین و کمترین x در $f(x)$ و $f'(x)$
تابع $f(x)$ برابر $f(x)$

$$min = -1 \quad |f(-1) - 1| = |1 - 1| = 0$$

$$Max = 1 \quad |f(1) - 1| = |1 - 1| = 0$$

$$x = 1 \Rightarrow y = 1 \quad x = -1 \Rightarrow y = -1$$

بر تابع y در $x = 1$ و $x = -1$ $y = 1$ و $y = -1$ $f(x)$ و $f'(x)$ $f(x)$ و $f'(x)$

$$\Rightarrow D_y = \left[\frac{1}{x}, \frac{1}{x} \right], R_y = [0, \infty) \rightarrow R_y = [0, \infty)$$

$$(-2, \infty) = Df(x_{n-1}) \cap Dg(x_{n+1})$$

$$Df(x_{n-1}) \rightarrow Df = (a, b] \quad a \leq x_{n-1} \leq b \rightarrow a+1 \leq x \leq b$$

$$Dg(x_{n+1}) \rightarrow Dg = [-1, b) \quad -1 \leq x_{n+1} < b \rightarrow -2 \leq x \leq b-1$$

$$\Rightarrow a+1 = -2 \Rightarrow a = -3 \quad a-b = -3-b = -9 \quad b-1 = \infty \Rightarrow b = \infty$$

$$f(n) = \left| \frac{n+1}{n+1} \right| \rightarrow \left| \frac{(n-2)+1}{2(n+1)} \right| \rightarrow \left| \frac{n-1}{2n-2} \right| + 1 = g(n)$$

$$n + g(n) < 0$$

$$n+1 + \left| \frac{n-1}{2n-2} \right| < 0$$

برای $n > 1$

$$\left\{ \begin{array}{l} n < 1 : \frac{1-n}{2-2n} + 1 + n < 0 \\ 1 < n < 1/2 : \frac{n-1}{2-2n} + 1 + n < 0 \\ n > 1/2 : \frac{n-1}{2n-2} + 1 + n < 0 \end{array} \right.$$

$$\frac{-(2n^2 - 2n - 2)}{2-2n} < 0$$

$$2n^2 - 2n - 2 > 0$$

$$2(2n^2 - 2n - 2)$$

$$2(2n^2 - 2n - 2)$$

$$\frac{-1}{2} \pm \frac{1}{2} = 0$$

$$(-1, 1)$$

رأس: $(h, k) \xrightarrow{\text{معادله خط}} y = a(n-h)^2 + k = -\frac{1}{3}n^2 + \frac{2}{5}n + 1 \rightarrow a = -\frac{1}{3}$ -9

رأس: $(4, 3) \rightarrow y = -\frac{1}{3}(n-4)^2 + 3 \xrightarrow{y=0} -\frac{1}{3}(n-4)^2 = -3 \rightarrow \begin{cases} n=7 \\ n=1 \end{cases}$

$D_{y_1} = [-3, 5] \rightarrow -3 \leq n \leq 5 \rightarrow -\frac{1}{3} \leq \frac{n}{2} + 1 \leq \frac{5}{2} \Rightarrow D_f = \left[-\frac{1}{3}, \frac{5}{2}\right]$ -9

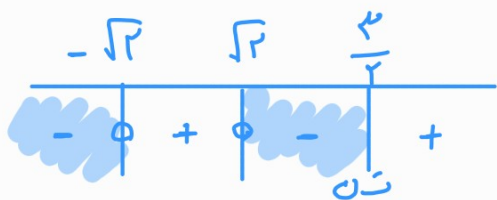
$R_{y_1} = [-1, 2] \rightarrow -1 \leq f \leq 2 \rightarrow -5 \leq 2f - 3 \leq 1 \rightarrow 0 \leq |2f - 3| \leq 5$

$0 \leq \sqrt{|2f - 3|} \leq \sqrt{5} \Rightarrow R_f = [0, \sqrt{5}]$

$g(n) = \left| \frac{(n-2)+1}{2(n-2)+1} \right| + 1 = \left| \frac{n-1}{2n-3} \right| + 1$ -10

$n + g(n) < 0 \rightarrow \left| \frac{n-1}{2n-3} \right| < -1-n$ از به قدر مطلق بزرگتر شده پس باید مثبت باشد: $-1-n > 0 \rightarrow n < -1$

$\xrightarrow{n < -1} \frac{n-1}{2n-3} < -1-n \rightarrow \frac{2n^2-4}{2n-3} < 0 \rightarrow \frac{2(n-\sqrt{2})(n+\sqrt{2})}{2n-3} < 0$



$\xrightarrow{n < -1} n < -\sqrt{2} \rightarrow (-\infty, -\sqrt{2})$