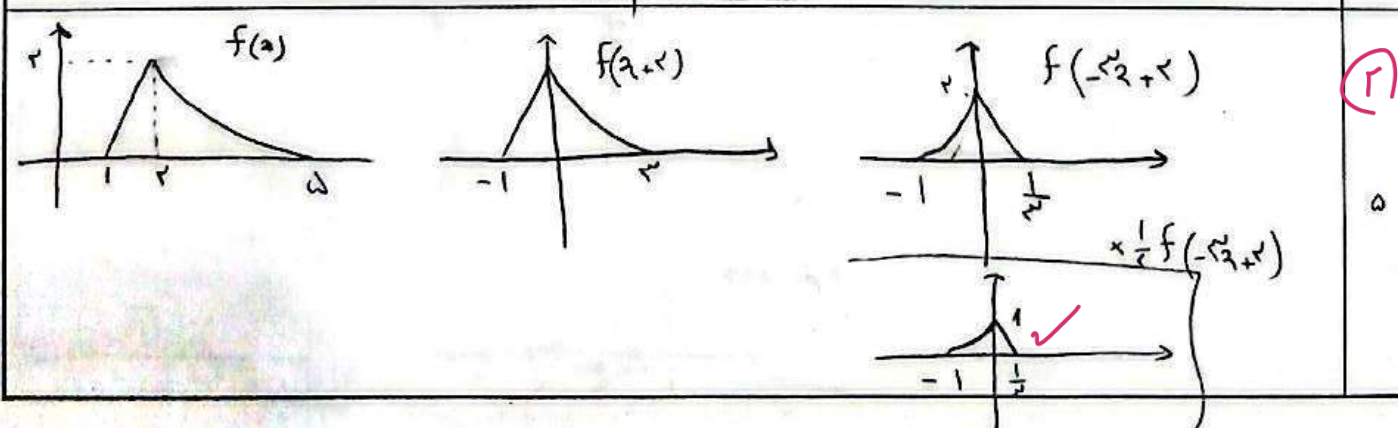
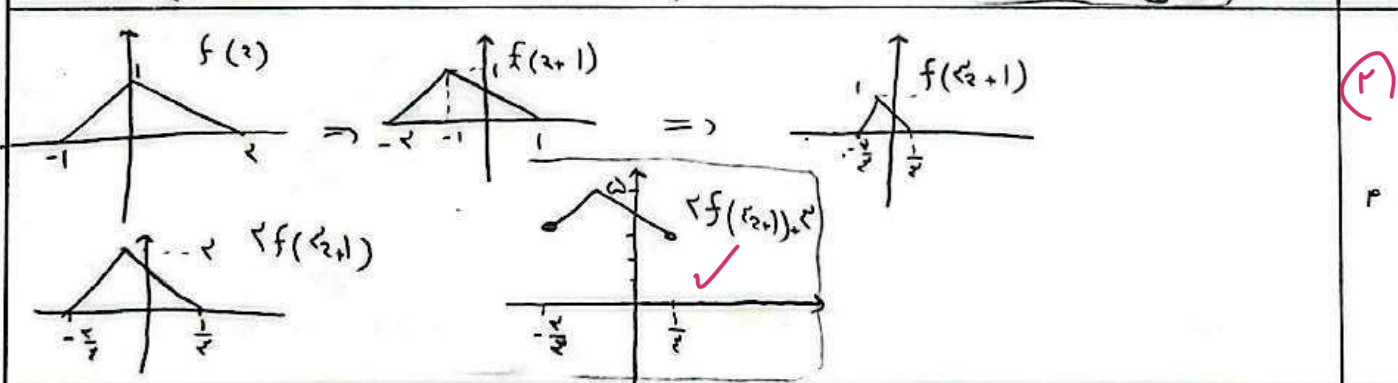


$D_f = [-4, 4] \quad f(x)$ $\Rightarrow -4 \leq x \leq 4$ $f\left(\frac{x+4}{5}\right) \Rightarrow -4 \leq \frac{x+4}{5} \leq 4$ $D_f\left(\frac{x+4}{5}\right) = ? \quad \begin{matrix} -10 \leq x+4 \leq 10 \\ -14 \leq x \leq 16 \end{matrix} \quad \overline{-4 \leq x \leq 4} \Rightarrow [-4, 4]$	۲ ۱
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$f(x_2 - x)$ $D_{f(x_2 - x)} = [-4, 4] \Rightarrow x_2 - x - 4 = -4, \quad x_2 - x - 4 = 4 \Rightarrow \begin{matrix} -4 \leq x \leq 0 \\ -4 \leq x_2 \leq 8 \end{matrix}$ $f(x) \Rightarrow D_{f(x)} = [-4, 4]$ $D_{f(x)} = ?$	۲ ۲
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$f\left(\frac{x_2+1}{2}\right) \Rightarrow D_f = [-1, 4]$ $\begin{matrix} -1 \leq x < 3 \\ -4 \leq x_2 < 9 \\ -4 \leq x_2+1 < 10 \end{matrix} \quad \begin{matrix} -1 \leq x_2 < 5 \\ -4 \leq -x_2 < 3 \end{matrix} \quad \frac{x}{5} \geq x > -\frac{x}{5}$ $\Rightarrow -1 \leq \frac{x_2+1}{2} < 5 \Rightarrow D_f = [-1, 5] \quad \rightarrow D_f = \left(-\frac{x}{5}, \frac{x}{5}\right]$	۲ ۳
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$$y = -\frac{1}{2}x^2 + \frac{1}{2}x + 1$$

$$\max \left\{ \frac{1}{2}x = \frac{1}{2} \Rightarrow x = 1 \right.$$

$$\left(2 - \frac{14}{8}, (4, \frac{27}{8}) \right)$$

$$\left(\frac{14}{8}, \frac{27}{8} \right) \sim \left(\frac{14}{8} + \left[\frac{14}{8} \right], \frac{27}{8} + \frac{27}{8} \right)$$

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$$(1, 4) \sim f(2)$$

$$\Rightarrow f(2, 4) \text{ و } 1 - \frac{f(2, 4)}{4} = y = \checkmark$$

$$x_2 + x = 1$$

$$x = -\frac{1}{2} \checkmark$$

$$\Rightarrow A(a, b) = \left(-\frac{1}{2}, -1 \right) \Rightarrow b = \frac{1}{2} \checkmark$$

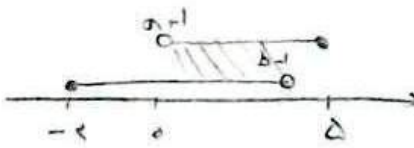
$$D_f = (a, 4]$$

$$D_g = [-1, b)$$

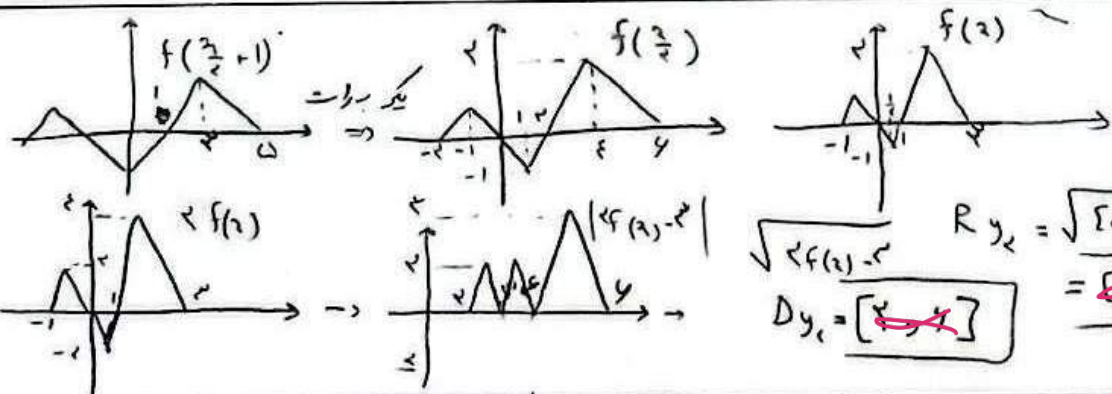
$$a - b = -\frac{1}{2} - 1 = -\frac{3}{2} \checkmark$$

$$a + 1 = -\frac{1}{2} \checkmark \quad b - 1 = 4 \checkmark$$

$$\left. \begin{aligned} f(2-1) &\Rightarrow D_f \Rightarrow (a, 4] \\ g(2+1) &\Rightarrow D_g \Rightarrow [-1, b-1) \end{aligned} \right\} \cap$$



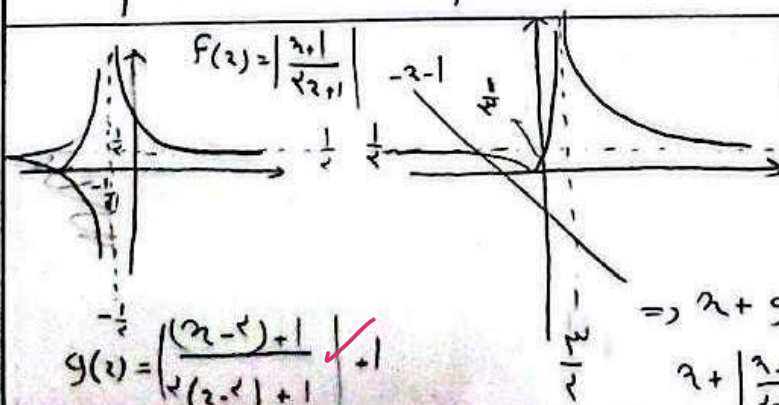
$$\Rightarrow D = (a+1, b-1) = (-\frac{1}{2}, 4)$$



$$R_{y_2} = \sqrt{[0, 4]}$$

$$D_{y_2} = [0, 4]$$

صفحه آفد



$$\left| \frac{x-1}{x^2-2} \right|$$

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

$$\Rightarrow -x^2 + 2x + 2 = -2 \Rightarrow x^2 - 2x - 4 = 0$$

$$-x^2 + 2x + 2 = 0$$

$$\Rightarrow \left(-\frac{1}{2} + \frac{\sqrt{5}}{2} \right)$$

$$\Rightarrow x + g(2) < 0$$

$$x + \left| \frac{x-1}{x^2-2} \right| + 1 < 0 \Rightarrow -x-1 > \left| \frac{x-1}{x^2-2} \right|$$

-9

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

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

-9

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

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

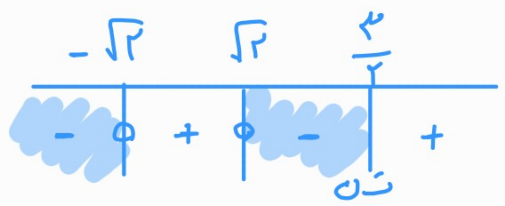
$0 \leq \sqrt{|2f - 3|} \leq \sqrt{5} \Rightarrow R_f = [0, \sqrt{5}]$

-10

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

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

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



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