

۲. از بین عالی نوشتی

$$f(x) = \sqrt{x+4}\sqrt{x-4} \Rightarrow \sqrt{x-4+4}\sqrt{x-4} = \sqrt{(x-4+2)^2} = |\sqrt{x-4+2}| \xrightarrow{x \geq 0} \sqrt{x-4}+2$$

$$g(x) = \sqrt{x-4}\sqrt{x-4} \Rightarrow \sqrt{x-4-4}\sqrt{x-4} = \sqrt{(x-4-2)^2} = |\sqrt{x-4-2}| \xrightarrow{x \geq 0} \sqrt{x-4}-2$$

$$\left. \begin{aligned} f(x)+g(x) &= 2\sqrt{x-4} \\ a+b\sqrt{x+c} \end{aligned} \right\} \begin{aligned} a=0, b=2, c=-4 \end{aligned} \quad \frac{a+b}{c} = \frac{2}{-4} = -\frac{1}{2}$$

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$$f(x) = \frac{x+2}{x^2-4x+3} \quad R = \{1, 3\} \Rightarrow (0, \frac{2}{3})(2, -4)$$

$$g(x) = \{(0, 4), (1, 0), (2, 1), (3, 5)\}$$

$$\frac{g}{f} = \{(0, 4), (2, -\frac{1}{2})\}$$

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$$الف) f(x) = \{(\frac{1}{2}, 2), (\frac{3}{2}, -1), (\frac{5}{2}, 2), (-\frac{1}{2}, 4)\}$$

$$ب) f(x) = \{(-1, 2), (1, 2), (\sqrt{3}, -1), (\sqrt{3}, -1), (-2, 2), (2, 2)\}$$

$$ج) xg(x)+1 = \{(-2, 19), (1, 3), (2, 9), (-1, 1)\}$$

$$د) \frac{xf}{g} = \{(1, -4), (3, -1)\}$$

دامنه اشتراک می گیریم

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$$h: f+g \quad h = \{(-2, 4), (2, 5), (3, 5)\}$$

$$Dg \cap Df = D_h = \{-2, 2, 3\}$$

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$$f(x) = \frac{\sqrt{x^2-4}}{x-2} \quad x \geq 0 \quad \sqrt{x^2-4} \geq 0 \Rightarrow x^2 \geq 4 \Rightarrow x \geq 2 \text{ یا } x \leq -2$$

$$g(x) = [x] + [x] \quad Dg = \mathbb{R} \quad D_h = D_f \cap D_g = \{x \mid g(x) \neq 0\} = \{0, 1, 3\}$$

$$h(x) = \left(\frac{f}{g+1} \right)(x)$$

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دائمه را اشتراك مزانيم $f(n) = \sqrt{5n^2 - 4} \Rightarrow 0 \leq 5n^2 - 4 \Rightarrow n \geq \frac{2}{\sqrt{5}} \approx 0.94 \Rightarrow n \in \mathbb{N}$ $f(n) = \{(1,0), (2,2), (3,0)\}$ $h(n) = \frac{f(n)}{g(n)} = \{(1,0), (2,1), \cancel{(3,0)}\}$	6
الف) $y = n^3 - 3n^2 + 3n \Rightarrow y-1 = (n-1)^3 \Rightarrow n = \sqrt[3]{y-1} + 1 \quad R = \mathbb{R}$ ب) $y = \frac{1}{n^2 - 2n} \Rightarrow y = \frac{1}{n^2 - 2n + 1 - 1} \Rightarrow y = \frac{1}{(n-1)^2 - 1} \Rightarrow (n-1)^2 - 1 = \frac{1}{y} \Rightarrow n = \pm \sqrt{\frac{y+1}{y}} + 1$ $\frac{y+1}{y} \geq 0 \Rightarrow \frac{-1}{+1-1} \Rightarrow R = (-\infty, -1] \cup (0, +\infty)$	7
الف) $y = n^2 - 5n + 6 \quad \text{ext} \left \begin{smallmatrix} 2 \\ 4 \end{smallmatrix} \right. \quad R = [4, +\infty)$ ب) $y = -n^2 + 4n + 3 \quad \text{ext} \left \begin{smallmatrix} 2 \\ 12 \end{smallmatrix} \right. \quad R = (-\infty, 12]$ ج) $y = \sqrt{n^2 - 5n - 3} \quad \text{ext} \left \begin{smallmatrix} 2 \\ 2 \end{smallmatrix} \right. \quad R = [0, +\infty)$ د) $y = \sqrt{4n - n^2} \quad \text{ext} \left \begin{smallmatrix} 2 \\ 2 \end{smallmatrix} \right. \quad R = [0, 2]$	8
الف) $y = n^3 - 3n^2 + 3n + 1 \quad R = \mathbb{R}$ ب) $y = n^3 - 4n^2 + 3n + 2 \quad R = \mathbb{R}$ ج) $y = \sqrt{n^3 - 4n^2 + 3n + 1} \quad R = [0, +\infty)$ د) $y = \left(\frac{n^3 - 4n^2 + 3n + 1}{1R} \right)^2 \quad R = [0, +\infty)$	9
الف) $y = \frac{3n+1}{n-2} \quad R = \mathbb{R} - \{2\}$ ب) $y = \frac{3n+1}{n+1} \quad R = \mathbb{R} - \{2\}$	10