

۲. آخرین خبری عالی نوشت

یلتا انوری - یازدهم A

- ۱- $f(x) = \sqrt{x+4}\sqrt{x-4}$ تغییر متغیر $t = \sqrt{x-4} \Rightarrow x = t^2 + 4$
- $g(x) = \sqrt{x-4}\sqrt{x-4}$
- $f(x) + g(x) = a + b\sqrt{x+c}$
- $f(x) = \sqrt{t^2+4}t+4 \Rightarrow \sqrt{(t+2)^2} = |t+2|$
- $g(x) = \sqrt{t^2-4}t+4 = \sqrt{(t-2)^2} = |t-2|$
- $f(x) + g(x) = 2t = 2\sqrt{x-4} = a + b\sqrt{x+c}$
- $\begin{cases} a = 0 \\ b = 2 \\ c = -4 \end{cases}$
 $\frac{a+b}{c} = \frac{-2}{-4} = \frac{1}{2}$
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- ۲- $D_f = \mathbb{R} - \{1, 3\}$ / $D_g = \{2, 1, 4, 0\} \Rightarrow D_g \cap D_f = \{2, 0\} \Rightarrow \frac{g}{f} = \left\{ (0, 4), (2, \frac{1}{2}) \right\}$
- $(x-1)(x-3)$
- $\frac{f}{g} = 2$
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- ۳- $f(x) = \left\{ \left(\frac{1}{2}, 2 \right), \left(\frac{3}{2}, -1 \right), (2, 2), \left(-\frac{1}{2}, 4 \right) \right\}$
- ۱- $f(x) = \left\{ (1, 2), (\sqrt{3}, -1), (-\sqrt{3}, -1), (2, 2), (-2, 2) \right\}$
- ۲- $g(x) = \left\{ (-2, 4), (1, 3), (2, 4), (-1, 1) \right\}$
- ۳- $\frac{f}{g} = \left\{ (1, -4), (2, -1) \right\}$
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- ۴- $h = 2f + g$
- $L \rightarrow h = \left\{ (2, 5), (3, 5), (-2, 9) \right\}$
- $\downarrow$ $\downarrow$
 $(1 \times 2) + 3$ $(1 \times 2) + 5$
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- ۵- $f(x) = \frac{\sqrt{3x-x}}{x-2}$
- $\begin{cases} I) 3x > 0 \rightarrow x > 0 \\ II) 3x - x > 0 \rightarrow \sqrt{2x} > 0 \rightarrow 2x > 0 \rightarrow x > 0 \end{cases}$
- $\Rightarrow D_f = [0, 3]$
- $g(n) = [n] + [-n] \rightarrow \begin{cases} x \in \mathbb{Z} & D_x = 0 \rightarrow g(n) + 1 = 1 \checkmark \\ x \notin \mathbb{Z} & D_x = -1 \rightarrow g(n) + 1 = 0 \rightarrow \text{غیر قابل قبول} \end{cases} \Rightarrow D_g = \mathbb{Z}$
- $\left(\frac{f}{g} \right)(n)$
- $\Rightarrow D_f \cap D_{(g)_n} = \{0, 1, 3\}$

• $f(x) = \sqrt{5x - x^2 - 4} \rightarrow \sqrt{-(x-4)(x-1)} \rightarrow \frac{-1}{-4+4} \rightarrow D_f = [1, 4]$

• $g(x) = \{(1, 1), (2, 1), (3, 1), (4, 1)\} \rightarrow D_g = \{1, 2, 3, 4\} \Rightarrow D_f \cap D_g = \{1, 2, 3\}$

• $h(x) = \frac{f(x)}{g(x)} \Rightarrow \{(1, 0), (2, \frac{\sqrt{1}}{1}), (3, 0)\} \rightarrow \text{undefined at } x=1, 3$

• الف) $y = x^3 - 3x^2 + 3x \rightarrow y = (x-1)^3 + 1 \rightarrow y-1 = (x-1)^3 \rightarrow \sqrt[3]{y-1} = x-1 \rightarrow x = \sqrt[3]{y-1} + 1 \rightarrow R_f = \mathbb{R}$

• ب) $y = \frac{1}{x^2 - 2x} \rightarrow yx^2 - 2xy - 1 = 0 \rightarrow x = \frac{2 \pm \sqrt{4y^2 + 4y}}{2y} \rightarrow I) y \neq 0 \Rightarrow R_f = (-\infty, -1] \cup (0, +\infty)$

• الف) $y = x^2 - 5x + 10 \rightarrow \begin{cases} \frac{-b}{2a} = \frac{5}{2} = 2.5 \\ F - 1 + 10 = 9 \end{cases} \rightarrow R_f = [9, +\infty)$

• ب) $y = -x^2 + 4x + 3 \rightarrow \begin{cases} \frac{-b}{2a} = 2 \\ -9 + 16 + 3 = 10 \end{cases} \rightarrow R_f = (-\infty, 10]$

• ج) $y = \sqrt{x^2 - 5x - 14} \rightarrow \begin{cases} \frac{-b}{2a} = \frac{5}{2} = 2.5 \\ F - 1 - 14 = -15 \end{cases} \rightarrow R_f = [0, +\infty)$

• د) $y = \sqrt{4x - x^2} \rightarrow \begin{cases} \frac{-b}{2a} = \frac{-4}{-2} = 2 \\ 16 - 4 = 12 \end{cases} \rightarrow R_f = [0, 2]$

• الف) $\mathbb{R}$ ب) $R_f = \mathbb{R}$ ج) $R_f \rightarrow [0, +\infty)$ د) $R_f = [0, +\infty)$

• الف) $y = \frac{3x+1}{x-2} \rightarrow R_f = \mathbb{R} - \{3\}$

• $R_f = \mathbb{R} - \{\frac{a}{c}\}$

• ب) $y = \frac{2x+1}{x+1} \rightarrow R_f = \mathbb{R} - \{2\}$