

$$f(x) = \sqrt{(x-4)+2} \text{ و } g(x) = \sqrt{(x-4)-2} \xrightarrow{x \geq 1} f(x)+g(x) = 2\sqrt{x-4}$$

$$\rightarrow a=0, c=-4, b=2 \rightarrow a+b+c = -2$$

$$\frac{g}{f} = f\left(\frac{1}{x}\right) \text{ و } \left(\frac{x-4}{x}\right)$$

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

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

$$ج) 2g(x)+1 = \left\{ (-2, 1), (2, -1), (2, 9), (-1, 1) \right\}$$

$$د) \frac{f}{g} = f(1-4), \left(\frac{x-4}{x}\right) \quad g(-2) = 3 \rightarrow 2\sqrt{x-2} + 1 = 3$$

$$2 \times 9 + 1 = 19$$

$$h = 2f + g = \left\{ (2, 0), (-2, 6), (2, 0) \right\}$$

$$f \text{ قابل: } x \geq 0 \rightarrow x \geq 0 \quad \sqrt{x-x} \geq 0 \rightarrow x-x \geq 0 \rightarrow 0 \leq x-x=0 \Rightarrow D_f = [0, \infty) - \{0\}$$

$$g \text{ قابل: } \rightarrow x \leq 4 \rightarrow g(x)+1 = 1 \Rightarrow x \in \mathbb{Z} \rightarrow \{0, 1, 2, 3, 4\}$$

$$\rightarrow x \notin \mathbb{Z} \rightarrow g(x)+1 = 0 \rightarrow \text{نقص}$$

$$f(x) = \frac{1}{x+1} \rightarrow D_f = [1, 4] \rightarrow h(x) = \left\{ (1, 0), (4, 0), \left(2, \frac{\sqrt{2}}{2}\right) \right\}$$

$$الف) y = (x-1)^2 + 1 \rightarrow \sqrt{y-1} + 1 = x \rightarrow D_f = \mathbb{R}$$

$$ب) y^2 - 4y - 1 = 0 \rightarrow x = \frac{4y \pm \sqrt{16y^2 + 4y}}{2y} \rightarrow 1 \pm \frac{\sqrt{4y^2 + y}}{y} \rightarrow y^2 + y \geq 0$$

$$\frac{-1 \pm \sqrt{1+4}}{2} \rightarrow D_f = (-\infty, -1] \cup [0, \infty)$$

$$الف) \left| \frac{1}{x} \right| \rightarrow [0, \infty) \quad ب) \left| \frac{1}{x} \right| \rightarrow (-\infty, 0] \quad ج) \left| \frac{1}{x} \right| \rightarrow \sqrt{[1, \infty)} \rightarrow [0, \infty)$$

$$د) \left| \frac{1}{x} \right| \rightarrow [0, \infty)$$

الف) $\mathbb{R}$ ب) $\mathbb{R}$ ج) $\mathbb{R}$ د) $\mathbb{R}$ (الف) $\mathbb{R}$ (ب) $\mathbb{R}$ (ج) $\mathbb{R}$ (د) $\mathbb{R}$

الف) $\{x-2\}$ ب) $\{x-2\}$ ج) $\{x-2\}$

(۳) x های f باید حقیقی باشند! $f(x) = \left\{ \left(\frac{1}{2}, 2 \right) \left(\frac{3}{2}, -1 \right) (2, 2) \left(-\frac{1}{2}, 4 \right) \right\}$

همه x های f را برابر x قرار دهیم! $f(x) = \left\{ (1, 2) (-1, 2) (\sqrt{3}, -1) (-\sqrt{3}, -1) (2, 2) (-2, 2) \right\}$

این عمل ردی و x های و اعمال می شود: $f_2(x) + 1 = \left\{ (-2, 19) (1, 3) (3, 9) (-1, 1) \right\}$

$\frac{f}{g} = \left\{ (1, \frac{2x-2}{-1}) (3, \frac{2x-1}{1}) (-1, \frac{2x-4}{-1}) \right\} = \left\{ (1, -2) (3, -1) \right\}$