

$$\left. \begin{aligned} f(x) &= \sqrt{x+2} \sqrt{x-2} \\ g(x) &= \sqrt{x-2} \sqrt{x-2} \end{aligned} \right\} x \geq 1 \quad g(x) = |x-2| = \begin{cases} x-2 & x \geq 2 \\ 2-x & x < 2 \end{cases}$$

$$g(x) = \sqrt{x-2} - 2$$

$$f(x) + g(x) = a + b\sqrt{x+c} \quad 2\sqrt{x-2} = g(x) + f(x)$$

$$x+2\sqrt{x-2} \Rightarrow t^2 + 2 + 2t = (t+2)^2 \quad \begin{matrix} a=0, b=2, c=-2 \\ \frac{0+2}{-2} = -1 \end{matrix}$$

$$f(x) = |t+2| = \sqrt{(x-2)+2} \rightarrow x-2\sqrt{x-2} = \frac{t^2}{(t-2)^2}$$

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

$$1-2+1 = 0 \quad f(2) = \frac{4}{-1} = -4$$

$$f(1) = \infty \quad \frac{g}{f} = 0$$

$$f(2) = \frac{0}{0} \times \quad f(0) = \frac{2}{4}$$

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

$$f(u) = \{(1, 2)(3, -1)(5, 2)(-1, 4)\} \quad (1^2)$$

$$g(u) = \{(-2, 1)(1, -1)(3, 2)(-1, 0)\}$$

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

$$f(u^2) = \{(\pm 1, 2)(\pm \sqrt{1}, -1)(\pm 2, 2)\}$$

$$2g^2(u) + 1 = \{(-2, 19)(1, 13)(3, 9)(-1, 13)\}$$

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

$$h(2) = 2(1) + 1 = 3 \quad h(-2) = 2(0) + 1 = 1$$

$$h(3) = 2(1) + 1 = 3 \quad h = \{(2, 3)(3, 3)(-2, 4)\}$$

$$1^2 u \geq 0 \quad u \geq 0 \rightarrow \sqrt{1^2 u} - u \geq 0 \quad (a)$$

$$\sqrt{1^2 u} \geq u \rightarrow 1^2 u \geq u^2$$

$$0 \leq u \leq 1 \xrightarrow{u \neq 1} g(u) = [u] + [-u] \quad u(1^2 - u) \geq 0$$

$$g(u) = 0, -1$$

$$g(u) + 1 \neq 0 \quad D = \{0, 1, 1^2\}$$

$$h(x) = \frac{f(x)}{g(x)} \quad f(1)=1 \quad h(1)=0 \quad (4)$$

$$f(2)=2 \quad h(2)=\frac{\sqrt{2}}{2}$$

$$f(3)=2 \quad h(3)=0$$

$$h = \left\{ (1,0), \left(2, \frac{\sqrt{2}}{2}\right), (3,0) \right\}$$

$$y = \underbrace{(x-1)^p}_{R} + 1 \rightarrow \mathbb{R} \quad (V)$$

$$x^p - 2x = (x-1)^p - 1 \rightarrow [-1, +\infty)$$

$$x^p - 2x \rightarrow \text{دو مرتبه} \rightarrow R = (-\infty, -1] \cup [0, +\infty)$$

$$y = (x-2)^p + 9 \quad R_y = [9, +\infty) \quad (\wedge)$$

$$y = -(x-3)^p + 12 \quad (-\infty, 12]$$

$$y = \sqrt{x^p - 8x - 1^p} = (x-2)^p - 1 \xrightarrow{\text{دو مرتبه}} [0, +\infty)$$

$$y = \sqrt{9x - x^p} \rightarrow \sqrt{9 - (x-3)^p} \rightarrow [0, 12]$$

$$\mathbb{R} \rightarrow \text{مجموعه اعداد حقیقی}$$

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$$\mathbb{R} = [0, +\infty) \rightarrow \text{داخله اعداد}$$

$$\mathbb{R} = [0, +\infty) \rightarrow y \geq 0 \rightarrow \text{مربع کامل}$$

$$\mathbb{R} - \left\{ \frac{a}{c} \right\} \rightarrow \mathbb{R} - \{3\}$$

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$$\mathbb{R} - \left\{ \frac{a}{c} \right\} \rightarrow \mathbb{R} - \{2\}$$