

$$(\sqrt{x+f\sqrt{x-f}} + \sqrt{x-f\sqrt{x-f}})^2 = x + f\sqrt{x-f} + x - f\sqrt{x-f} + 2\sqrt{x^2 - 14x + 5f}$$

$$2x + 2x - 14 \rightarrow 4x - 14 \rightarrow \sqrt{4(x-f)} \rightarrow 2\sqrt{x-f}$$

$$\frac{-1}{2} = \frac{0 + \frac{1}{2}}{-f}$$

$$a=0 \quad b=2 \quad c=-f$$

$$\frac{g}{f} = \{2, 0\} \rightarrow \frac{x+2}{(x-2)(x-1)} \rightarrow \mathbb{R} - \{1, 2\}$$

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

$$f(2) = -f$$

$$g(2) = 1$$

$$f(0) = \frac{2}{f}$$

$$g(0) = 2$$

$$\text{الف) } \left\{ \left(\frac{1}{2}, 2 \right), (1, 2), (2, 2), (-2, 2) \right\}$$

$$2x=1$$

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

$$2x=2$$

$$x=1$$

$$2x=4$$

$$x=2$$

$$2x=-1$$

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

$$\text{ب) } \left\{ (1, 2), (-1, 2), (\sqrt{2}, -1), (-\sqrt{2}, -1), (2, 2), (-2, 2) \right\}$$

$$x^2 = -1$$

$$\text{ج) } \left\{ (-2, 1), (1, 3), (2, 9), (-1, 1) \right\}$$

$$x=x \rightarrow 2x(x^2+1)$$

$$x=1 \rightarrow 2x(-1)^2+1$$

$$x=2 \rightarrow 2x \cdot 2^2+1$$

$$x=-1 \rightarrow 2x(1)^2+1=1$$

$$\text{د) } \left\{ (1, -4), (2, -1) \right\}$$

$$\{2, 1\} = \text{مجموعه} \rightarrow (-1, 2) = 0$$

$$f(1) = 2$$

$$g(1) = -1$$

$$f(2) = -1$$

$$g(2) = 2$$

$$D = \{2, -2, 3\} \quad x=2$$

$$f(2)=1$$

$$g(2)=3$$

$$f(-2)=0$$

$$g(-2)=5$$

$$f(3)=1$$

$$g(3)=3$$

$$h(2)=\omega$$

$$h(-2)=5$$

$$h(3)=\omega$$

$$h(x) = \{(2, \omega), (-2, 5), (3, \omega)\}$$

$$\text{هـ) } D_f \rightarrow x > 0 \rightarrow [0, 2] - \{2\}$$

$$x \neq 2$$

$$\sqrt{x} \geq x$$

$$2x \geq x^2$$

$$0 \geq x^2 - 2x$$

$$0 \leq x \leq 2$$

$$D(g) = \mathbb{R} \rightarrow \mathbb{R} - \mathbb{Z}$$

$$0 \neq \text{مجموعه}$$

$$\rightarrow (0, 2) - \{1, 2\}$$

$$D_f = \{0, 1, 2\}$$

$$g+1 \neq 0 \rightarrow g(x) \neq -1$$

$$x \in \mathbb{Z}$$

$$-x^2 + 5x - 4 \geq 0$$

$$x^2 - 5x + 4 \leq 0$$

$$(x-4)(x-1)$$

$$1 \leq x \leq 4 \rightarrow D_h = \{1, 2, 3, 4\}$$

$$h = \{(1, 0), (2, \frac{\sqrt{2}}{2}), (4, 0)\}$$

$$\frac{f(x)}{g(x)} = \frac{0}{3} \quad \frac{f(x)}{g(x)} = \frac{\sqrt{2}}{2} \quad \frac{f(x)}{g(x)} = \frac{0}{4}$$

الف) $R \rightarrow$ بزرگترین توان منفرجه R باید باروش اصلی بدست آید!

۱.۷۵

$$x^2y - 2xy = 1 \rightarrow x^2y - 2xy - 1 = 0$$

۱.۷۵

$$y = 0$$

$$0 = 1x$$

$$4y^2 + 4y \geq 0$$

$$4y(y+1) \geq 0 \rightarrow R = (-\infty, -1] \cup [0, +\infty)$$

$$الف) 16 - 40 = -24 \quad \frac{24}{4} = 6 \quad [6, +\infty)$$

$$ب) 36 + 12 = 48 \quad \frac{-41}{-4} = 12 \quad (-12, 12]$$

$$ج) 16 + 12 = 28 \quad \frac{-21}{4} = -7 \quad [-7, +\infty)$$

$$د) \frac{-36}{-4} = 9$$

$$\sqrt{9} = 3 \text{ دقت!}$$

$$[3, +\infty) \quad [0, 1] \quad [1, 6]$$

الف) R

ب) $R \rightarrow$ بزرگترین توان منفرجه R باید باروش اصلی بدست آید!

ج) $[0, +\infty) \rightarrow$ زیر را در کمال مثبت

د) $[0, +\infty) \rightarrow$ توان ۲ منفی نمی شود

$$الف) R - \{3\} \rightarrow \frac{3}{a} = \frac{3}{1}$$

$$ب) R - \{3\} \rightarrow \frac{c}{a} = \frac{2}{1}$$

$$f(n) = \frac{\sqrt{3n} - n}{n-2} \rightarrow \begin{cases} n \neq 2 \\ n > 0 \end{cases} \quad (\sqrt{3n}) \rightarrow D_f = [0, 2] - \{2\} \quad (\infty)$$

$$\sqrt{3n} - n > 0 \rightarrow 3n > n^2 \rightarrow 0 < n < \sqrt{3}$$

$$g(n) + 1 \neq 0 \rightarrow g(n) \neq -1 \rightarrow [n] + [-n] \neq -1 \rightarrow n \in \mathbb{Z}$$

$$D_{\frac{f}{g+1}} = \left\{ D_f \cap D_g, g(n) \neq -1 \right\} = \left\{ 0, 1, \sqrt{3} \right\}$$

$$[0, \sqrt{3}] - \{2\} \cap \mathbb{Z}$$

الف) $y = n^3 - 3n^2 + 2n - 1 + 1 = y = (n-1)^3 + 1$ (V)

$$y - 1 = (n-1)^3 \rightarrow \sqrt[3]{y-1} = n-1 \rightarrow n = \sqrt[3]{y-1} + 1$$

$$R_f = \mathbb{R}$$

ب) $y = \frac{1}{n^2 - 2n} \rightarrow n^2 y - 2n y = 1 \rightarrow n^2 y - 2n y - 1 = 0$

$$y \neq 0 \rightarrow n = \frac{2y \pm \sqrt{4y^2 + 4y}}{2y} \rightarrow 4y(y+1) \geq 0 \rightarrow \frac{-1}{+} \frac{0}{+}$$

$$y = 0 \rightarrow 0 = 1 \times \text{صفتين وجدنا!} \rightarrow R_f = (-\infty, -1] \cup (0, +\infty)$$

الف- ١) $y = n^2 - 2n + 1 \rightarrow \min \begin{cases} n = \frac{2}{2} = 1 \\ y = 1 - 2 + 1 = 0 \end{cases} \rightarrow R_f = [0, +\infty)$

ب- ١) $y = -n^2 + 4n + 3 \rightarrow \max \begin{cases} n = \frac{4}{-2} = -2 \\ y = -9 + 12 + 3 = 6 \end{cases} \rightarrow R_f = (-\infty, 6]$

ج- ١) $y = n^2 - 2n - 3 \rightarrow \min \begin{cases} n = \frac{2}{2} = 1 \\ y = 1 - 2 - 3 = -4 \end{cases} \rightarrow R_f = \sqrt{[-4, +\infty)} = [0, +\infty)$

د- ١) $y = 4n - n^2 \rightarrow \max \begin{cases} n = \frac{4}{-2} = -2 \\ y = 12 - 4 = 8 \end{cases} \rightarrow R_f = \sqrt{(-\infty, 8]} = [0, 8]$