

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

$$\sqrt{x-4}\sqrt{x-4} + \sqrt{x-4} + \sqrt{x-4} = \sqrt{(x-4)+2} \quad \sqrt{(x-4)+2} = \sqrt{x-4} \Rightarrow a=0 \quad c=-4 \quad b=2 \quad \frac{2}{-4} = -\frac{1}{2}$$

$$(2, \frac{2+2}{2-1+3}) (1, \frac{1+2}{1-1+3}) (3, \frac{3+2}{9-1+3}) (0, \frac{0+2}{0-0+2})$$

$$(2, -4) (0, \frac{2}{2})$$

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

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

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

$$f(x) = \{ (\frac{1}{2}, 4) (\frac{3}{4}, -1) (\frac{5}{6}, 2) (-\frac{1}{6}, 4) \}$$

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

$$2g(x)+1 = \{ (-2, 9), (1, 3), (3, 9), (-1, 1) \}$$

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

$$h = 2f + g$$

$$\{ (2, 2(1)+3), (-2, 2(0)+4), (3, 2(1)+3) \}$$

$$\{ (2, \infty), (-2, 4), (3, \infty) \}$$

$$g+1 \neq$$

$$f(x) \rightarrow x \neq 2$$

$$g \neq -1$$

$$x \neq 0 \quad \sqrt{3x-x}$$

$$g(x) \rightarrow -1 \text{ ممتنع } \rightarrow \mathbb{R} - \mathbb{Z}$$

$$\sqrt{3x-x} \geq 0 \quad \leftarrow$$

بسط جايده $\mathbb{Z}$ جايده $\mathbb{R}$ - $\mathbb{Z}$ ممتنع

$$\sqrt{3x} \geq x \Rightarrow 3x \geq x^2 \Rightarrow \frac{0}{x} \geq \frac{x}{x} \Rightarrow \frac{0}{x} \geq 1$$

$$D_f = \{ 0, 1, 3 \}$$

$$x \neq 3x \geq 0 \quad x(x-3) \geq 0$$

$$f(x) = \{ (1, \sqrt{1-4}), (2, \sqrt{1-4}), (3, \sqrt{1-4}), (0, \sqrt{1-4}) \}$$

$$\Rightarrow f(x) = \{ (1, 0), (2, \sqrt{3}), (3, 0) \} \quad h(x) = \{ (1, \frac{0}{3}), (2, \sqrt{\frac{3}{4}}), (3, \frac{0}{4}) \} \Rightarrow h(x) = \{ (1, 0), (2, \sqrt{\frac{3}{4}}), (3, 0) \}$$

$$\sqrt{x-4}\sqrt{x-4}+4-4 = \sqrt{(x-4)-4}\sqrt{x-4}+4 = \dots$$

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الف) $y = x^3 - 3x^2 + 3x - 1 + 1$

$R_f = \mathbb{R}$ چون المبدأ التالي هو ما نأمله

ج) $y - 1 = (x-1)^3 \Rightarrow x-1 = \sqrt[3]{y-1} \Rightarrow x = \sqrt[3]{y-1} + 1 \Rightarrow R_f = \mathbb{R}$

$R_f = [-\infty, +\infty]$

ج) $yx^2 - 2yx = 1 \Rightarrow yx^2 - 2yx - 1 = 0 \Rightarrow 4y^2 + 4y \geq 0 \mid y=0 \Rightarrow 0 \neq 0$

$f_y(0+1) = 0 \mid \begin{matrix} -1 & 0 \\ +4 & -4 \end{matrix}$

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الف) $\frac{-b}{2a} = \frac{-(-4)}{2(1)} = 2 \Rightarrow 4-1+1=4 \Rightarrow a \geq 0 \Rightarrow \text{Min} \Rightarrow R_f = [4, +\infty)$

ج) $\frac{-b}{2a} = \frac{-(-4)}{2(1)} = 2 \Rightarrow -9+18+3=12 \Rightarrow a \geq 0 \Rightarrow \text{Max} \Rightarrow R_f = (-\infty, 12]$

ج) $\frac{-b}{2a} = \frac{-(-4)}{2(1)} = 2 \Rightarrow 4-1-3=-1 \Rightarrow R_f = [0, +\infty)$

ج) $\frac{-b}{2a} = \frac{-(-4)}{2(1)} = 2 \Rightarrow 4-1-9=-6 \Rightarrow R_f = [0, 3]$

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الف) $\mathbb{R}$ ج) $\mathbb{R}$ ح) $[0, +\infty)$ د) $[0, +\infty)$

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الف) $\mathbb{R} - \{3\}$ ج) $\mathbb{R} - \{2\}$

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