

١٩ افريل

يازدهم صفر A

صبر راعتي

$$f(x) + g(x) = \sqrt{x-f}\sqrt{x-e} + \sqrt{x-e}\sqrt{x-e}$$

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

$$= 2\sqrt{x-f} \rightarrow a+b\sqrt{ace}$$

$$\frac{a+b}{c} = \frac{-1}{f}$$

$$a=0, b=2, c=-f$$

$$f(x) = \frac{(x+2)}{(x-3)(x-1)} \rightarrow D_f = \mathbb{R} - \{3, 1\}$$

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

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

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

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

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

$$h = Y^2 + g \rightarrow \{(Y, \omega), (1^u, \omega), (-Y, 4)\}$$

$$f(n) = \frac{\sqrt{\sqrt{11n} - n}}{n - r}, \quad g(n) = [n] + [-n]$$

$$D_g = \mathbb{N}^2$$

$$r \neq r, \quad u \geq 0, \quad \sqrt{11n} - n \geq 0$$

$$n^r \leq 11n$$

$$n(n - r) \leq \frac{11}{r - 1} +$$

$$D_f = [0, 11] - \{r\}$$

$$\left(\frac{f}{g+1}\right)(n) \rightarrow g \neq -1 \rightarrow D_g = \mathbb{Z}$$

$$D \frac{f}{g+1} = D_f \cap D_g = ([0, 11] - \{r\}) \cap \mathbb{Z} = [0, 1, 11]$$

$$f(n) = \sqrt{-(n^2 - \omega n + \epsilon)} = \sqrt{\frac{-(n - \epsilon)(n - \omega)}{(1 - n)(1 - \omega)}} = \frac{1}{1 - \epsilon} \frac{f}{1 - \omega}$$

$$D_f = [1, f]$$

$$\bigcap D \frac{f(n)}{g(n)} = \{1, r, \epsilon, \omega\}$$

$$D_g = \{1, r, \epsilon, \omega\}$$

$$h = \frac{f(n)}{g(n)} = \{(1, 0), (Y, \sqrt{\frac{r}{1 - \epsilon}}), (\epsilon, 0)\}$$

الف) $y = n^3 - 3n^2 + 3n - 1 + 1$

(V)

من (n-1) كذا يذرا

$$n^3 - 3n^2 + 3n - 1 \mid \frac{n-1}{n^2 - 2n + 1}$$

$$y = (n-1)^3 + 1$$

$$\begin{array}{r} -3n^2 + 3n \\ + 3n^2 - 2n \\ \hline n-1 \end{array}$$

$$n = \sqrt[3]{y-1} + 1$$

$$D_y = \mathbb{R}$$

$$R_f = \mathbb{R}$$

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

$$\frac{1+y}{y} \geq 0 \rightarrow \frac{-1}{+} \mid \frac{0}{-} \rightarrow n = \sqrt{\frac{1+y}{y}} + 1$$

$$R_f = \mathbb{R} - (-1, 0]$$

الف) $y = n^2 - 8n + 10 \rightarrow \frac{n}{y} = \frac{-b}{2a} = 4$

(A)

min

$$y = 16 - 8 + 10 = 10$$

$$R_f = [10, +\infty)$$

ب) $y = -n^2 + 4n + 3 \rightarrow \frac{n}{y} = \frac{-b}{2a} = 2$

max

$$y = 11$$

$$R_f = (-\infty, 11]$$

$$ج) y = \sqrt{x^2 - 4x - 3} \rightarrow y^2 = x^2 - 4x - 3 \quad \text{---} \quad x^2 - 4x - 3 = y^2$$

نباید بتوانیم به این صورت جواب ضاعف ایجاد می‌کنند

جواب ضاعف ایجاد می‌کنند

$$y^2 = (x-2)^2 - 7 \quad \text{---} \quad (x-2)^2 - 7 = y^2 \quad \text{---} \quad (x-2)^2 - 7 = y^2$$

$$y^2 + 7 \geq 0$$

$$y = \mathbb{R}$$

$$د) y = \sqrt{4x - x^2} \rightarrow y^2 = 4x - x^2$$

$$x^2 - 4x = -y^2$$

$$x^2 - 4x + 4 = -y^2 + 4$$

$$(x-2)^2 - 4 = -y^2 + 4$$

$$4 - y^2 \geq 0 \rightarrow -2 \leq y \leq 2$$

$$x = \sqrt{4 - y^2} + 2$$

$$R = [-2, 2]$$

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

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$$ب) y = x^3 - 4x^2 + 3x + 2 \rightarrow R_f = \mathbb{R}$$

$$ج) y = \sqrt{x^3 - 4x^2 + 3x + 1} \rightarrow R_f = [0, +\infty)$$

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$$د) y = (x^3 - 4x^2 + 3x + 1)^2 \rightarrow R_f = [0, +\infty)$$

$$\text{الف) } y = \frac{n+1}{n-4} \quad R_f = \mathbb{R} - \{4\}$$

(1.)

$$\text{ب) } y = \frac{n+1}{n+1} \quad R_f = \mathbb{R} - \{1\}$$

2

$$\text{الف-1) } y = n^2 - 2n + 1 \rightarrow \min \quad \left| \begin{array}{l} n = \frac{2}{2} = 1 \\ y = 1 - 2 + 1 = 0 \end{array} \right. \rightarrow R_f = [0, +\infty)$$

$$\text{ب-1) } y = -n^2 + 4n + 3 \rightarrow \max \quad \left| \begin{array}{l} n = \frac{4}{-2} = -2 \\ y = -9 + 12 + 3 = 6 \end{array} \right. \rightarrow R_f = (-\infty, 6]$$

$$\text{ج-1) } y = n^2 - 2n - 3 \rightarrow \min \quad \left| \begin{array}{l} n = \frac{2}{2} = 1 \\ y = 1 - 2 - 3 = -4 \end{array} \right. \rightarrow R_f = \sqrt{[-4, +\infty)} = [-4, +\infty)$$

$$\text{د-1) } y = 4n - n^2 \rightarrow \max \quad \left| \begin{array}{l} n = \frac{4}{-2} = -2 \\ y = 12 - 4 = 8 \end{array} \right. \rightarrow R_f = \sqrt{(-\infty, 8]} = (-\infty, 8]$$