

$$f(n) = \{(r, 1)(1, 0)(r, 0)(0, r)\} \quad n \neq 1$$

$$\frac{f}{g} = \{(0, \frac{1}{r}), (r, -r)\} \quad n \neq 3$$

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الـ) $\{(\frac{1}{r}, r), (\frac{r}{r}, -1), (r, \frac{r}{r}), (-\frac{1}{r}, r)\}$

$$\begin{cases} n^r = r \rightarrow n = \pm r \\ n^r = 1 \rightarrow n = \pm 1 \\ n^r = r \rightarrow n = \pm \sqrt{r} \end{cases}$$

بـ) $\{(\frac{1}{r}, r), (\frac{r}{r}, -1), (r, \frac{r}{r}), (-\frac{1}{r}, r)\}$

جـ) $\{(1, r), (r, 0), (r, r), (r, 1)\}$

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دـ) $(1, \frac{r}{r}), (r, -\frac{r}{r}), (-1, \frac{r}{r})$

$r \leq n \quad r + r \leq r$

$r \leq n \quad r + r \leq r$

$-r \leq n \quad -r + r \leq r$

$D_h = D_f \cap D_g \rightarrow D_h = \{r, -r, r\}$

$h(n) = r f(n) + g(n) \rightarrow h = \{(r, r)(-r, r)(r, r)\}$

$\sqrt{rn} - n \geq 0 \rightarrow \sqrt{rn} \geq n \rightarrow rn \geq n^2 \rightarrow n^r - rn \leq 0$

$\frac{\sqrt{rn} - n}{g(n) + 1} = \left(\frac{f}{g+1}\right) \rightarrow \frac{\sqrt{rn} - n}{(n-r)(g(n)+1)} \quad n \neq 2$

$n \geq 0 \quad g(n) \neq -1 \quad \cdot \leq n \leq r, n \neq r$

$g(n) = [n] + [-n]$

$[n] + [-n] = -1$

$[r \times r] = 2 \quad [-r, r] = -3$

$D = \{0, 1, r, r, r, \dots\}$

$\{0, 1, r\}$

$\{0, 1, r\}$

$f(n) = \sqrt{-n^r + 2n - r} \geq 0 \rightarrow \sqrt{-n^r + 2n - r} \geq 0 \rightarrow -n^r + 2n - r \geq 0$

$n^r = 0 \rightarrow n = 0$

$\frac{f(1)}{g(1)} \checkmark \quad \frac{f(r)}{g(r)} \checkmark \quad \frac{f(r)}{g(r)} \checkmark \quad \frac{f(r)}{g(r)} \checkmark$

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الـ) $y = (n-1)^r + 1$

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

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

$\mathbb{Q} \subset \mathbb{R}$

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$$\left(\sqrt{x + f\sqrt{x-f}} + \sqrt{x-f}\sqrt{x-f} \right)^r \quad (1)$$

$$S^r \leq \underbrace{(x + f\sqrt{x-f}) + (x - f\sqrt{x-f})}_{rx} + r\sqrt{(x + f\sqrt{x-f})(x - f\sqrt{x-f})}$$

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

$$\Rightarrow x^2 - 14(x-f)$$

$$\Rightarrow x^2 - 14x + 14f$$

$$S^r \leq rx + r\sqrt{(x-f)r}$$

$$|x-f| \leq x-f \quad rx + rx - 14 \leq S^r$$

$$S^r \leq rx - 14$$

$$S \leq \sqrt{rx - 14}$$

$$S \leq r\sqrt{x-f} \leq 0 + r\sqrt{x-f}$$

$$\frac{a \leq b}{c} \leq -\frac{1}{r} \quad \begin{matrix} a \leq 0 \\ b \leq r \\ c \leq -f \end{matrix}$$

$$f_{(2n)} = \left\{ \left(\frac{1}{2}, 2\right) \left(\frac{\sqrt{2}}{2}, -1\right) (2, 2) \left(-\frac{1}{2}, 4\right) \right\} \quad \text{ن های } f \text{ باید حقیق برابر شوند!} \quad (3)$$

$$f_{(2^k)} = \left\{ (1, 2) (-1, 2) (\sqrt{2}, -1) (-\sqrt{2}, -1) (2, 2) (-2, 2) \right\} \quad \text{هر کدام از } n \text{ های } f \text{ را برابر } 2^k \text{ قرار دهیم!}$$

$$g_{(n)+1} = \left\{ (-2, 19) (1, 3) (3, 9) (-1, 1) \right\} \quad \text{این عمل روی } n \text{ های } g \text{ اعمال می شود!}$$

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

$$f(n) = \frac{\sqrt{\sqrt{3n}} - n}{n-2} \rightarrow \begin{cases} n \neq 2 \\ n \geq 0 \end{cases} \quad (\sqrt{3n}) \rightarrow Df = [0, 3] - \{2\} \quad (5)$$

$$\begin{cases} \sqrt{3n} - n \geq 0 \rightarrow 3n \geq n^2 \rightarrow 0 \leq n \leq 3 \end{cases}$$

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

$$D \frac{f}{g+1} = \left\{ Df \cap Dg, g(n) \neq -1 \right\} = \left\{ 0, 1, 3 \right\}$$

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