

الف) $a_1 y^2 (a_n - 1)^2$

→

$(a_n - 1)^2$

$a_n - 1 \rightarrow a_n - 1$

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ب) $y_{n+1}^2 - y_n^2 = 1$

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الف) $a_1 y^2 \rightarrow y_{min} = 2$

ب) $a_1 y^2 \rightarrow y_{max} = 12$

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و اما عبارت با توان ۲
نیست!

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محل ریشه ها

$$(f(a) + g(a))^p \rightarrow a - \varepsilon \sqrt{a - \varepsilon} + a + \varepsilon \sqrt{a - \varepsilon} + 1 \Rightarrow |a + \varepsilon \sqrt{a - \varepsilon} - 1| = \varepsilon \sqrt{a - \varepsilon} \sqrt{a + \varepsilon \sqrt{a - \varepsilon} + 1} \leq (a - \varepsilon)^{\frac{1}{2}}$$

$$2a + \varepsilon |a - 1| \rightarrow 2a + \varepsilon |a - 1| = \varepsilon |a - 1|$$

$$f(0) = \frac{1}{p}, \quad \frac{g(0)}{f(0)} = \frac{1}{p}, \quad f(1) = -\varepsilon, \quad g(1) = 1$$

$$\varepsilon |a - \varepsilon| \sqrt{a - \varepsilon} \rightarrow a - \varepsilon \sqrt{a - \varepsilon} \quad \left(\begin{matrix} a, \sqrt{a} \\ a+b = \frac{1}{2} = -\frac{1}{4} \end{matrix} \right)$$

$$f(2a) = \left\{ (1, 1), (1, 2), (2, 1), (2, 2) \right\}$$

$$f(a^2) = \left\{ (1, 1), (1, 2), (2, 1), (2, 2) \right\}$$

$$2g(a^2) = \left\{ (1, 1), (1, 2), (2, 1), (2, 2) \right\}$$

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

$$2f(a) = \left\{ (1, 1), (1, 2), (2, 1), (2, 2) \right\}$$

$$\begin{aligned} n^2 = 1 &\rightarrow n = \pm 1 \\ n^2 = 2 &\rightarrow n = \pm \sqrt{2} \\ n^2 = 3 &\rightarrow n = \pm \sqrt{3} \end{aligned}$$

دقت!

به برای این عبارت ترتیب بدو
ناتمام



$$[a] + [a] + 1 \neq 0 \rightarrow [a] + [a] \neq -1$$

$$a-1 \neq 0, \quad a \neq 1$$

$$\sqrt{a(a-1)} = 0 \rightarrow a(a-1) = 0$$

$$a(a-1) = 0 \rightarrow a = 0 \text{ or } a = 1$$

$$a(a-1) = 0 \rightarrow a = 0 \text{ or } a = 1$$

$$f(1) \rightarrow 1 - \varepsilon + \varepsilon = 0$$

$$f(2) \rightarrow 2 - \varepsilon + \varepsilon = 0$$

$$f(3) \rightarrow 3 - \varepsilon + \varepsilon = 0$$

$$\left\{ (0, 1), (1, 2), (2, 3) \right\}$$

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

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$$f(2n) = \left\{ \left(\frac{1}{2}, 2 \right) \left(\frac{2}{3}, -1 \right) (2, 2) \left(-\frac{1}{2}, 4 \right) \right\} \quad \text{ن های } f \text{ باید تجمیع بر ۲ بشوند!} \quad (۳)$$

$$f(2n) = \left\{ (1, 2) (-1, 2) (\sqrt{3}, -1) (-\sqrt{3}, -1) (2, 2) (-2, 2) \right\} \quad \text{هر کدام از } n \text{ های } f \text{ را برابر } 2 \text{ قرار دهیم!}$$

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

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

$$f(n) = \frac{\sqrt{3n} - n}{n - 2} \rightarrow \begin{cases} n \neq 2 \\ n \geq 0 \end{cases} \quad \begin{cases} (\sqrt{3n}) \\ \sqrt{3n} - n \geq 0 \rightarrow 3n \geq n^2 \rightarrow 0 \leq n \leq 3 \end{cases} \rightarrow Df = [0, 3] - \{2\} \quad (۵)$$

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

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

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

الف) $Rf \in \mathbb{R}$

۹) توانی درجه فرد بر دی برابر $\mathbb{R}$ دارند!

ب) $Rf \in \mathbb{R}$

ج) $Rf \in \sqrt{\mathbb{R}} = [0, +\infty)$

د) $Rf \in (R)^2 = [0, +\infty)$

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

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

$\mathcal{R}_f = \mathbb{R}$

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

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

$y = 0 \rightarrow 0 = 1 \times$ صفتی وجود ندارد! $\rightarrow \mathcal{R}_f = (-\infty, -1] \cup (0, +\infty)$