

۲

پنجشنبه

24 July 2025

۱۴۴۷ محرم ۲۸

الف

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مرداد ۱۴۰۴

8

$$f(n) = \begin{cases} n^2 - 4 & n > 4 \\ 14n - 20 & n \leq 4 \end{cases}$$

$$a^2 - 4 > 12a - 20$$

$$a^2 - 12a + 14 > 0$$

①

9

$$(a-2)(a-2)(a+4) \geq 0$$

$$\begin{array}{c} -2 \quad +4 \\ \hline -2 \quad +4 \end{array} \Rightarrow a > -4$$

$$\begin{array}{r} a^2 - 12a + 14 \quad | \quad a-2 \\ a^2 - 2a^2 \quad | \quad a^2 + 2a - 4 \\ \hline 2a^2 - 12a + 14 \end{array}$$

$$2a^2 - 12a + 14$$

$$2a^2 - 4a$$

$$-8a + 14$$

$$-8a + 14$$

0

11

$$f(n) = 3n + k \quad f^{-1}(2) = 4 \rightarrow f(4) = 2$$

$$3 \times 4 + k = 2 \rightarrow k = -10$$

②

$$f(u) = \text{الف}$$

$$\rightarrow f(f(n))$$

$$3(u) - 10 = 11$$

$$= 3(3n - 10) - 10 = 9n - 40$$

12

۳

جمعه

25 July 2025

۱۴۴۷ محرم ۲۹

$$P(x, a) \rightarrow (a, x) \rightarrow f(n) = \frac{an}{n-1}$$

③

10

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

$$2a^2 - 2a = a^2 \rightarrow a^2 - 2a = 0$$

$$a(a-2) = 0$$

$$\rightarrow a = 0 \text{ or } 2$$

$$\rightarrow a = 2$$

11

$$f^{-1} = \{(3, 5), (4, 7), (7, 2), (9, 4)\}$$

④

$$f^{-1} = \{(5, 3), (7, 4), (2, 7), (4, 9)\}$$

$$g = \{(3, 2), (8, 4), (9, 5)\} \quad g^{-1} = \{(2, 3), (4, 8), (5, 9)\}$$

$$f \circ f^{-1} = \{(5, 5), (7, 7), (2, 2), (4, 4)\}$$

10

$$f^{-1} \circ f = \{(3, 3), (4, 4), (7, 7), (9, 9)\}$$

11

$$f \circ g^{-1} = \{(2, 5), (5, 4)\} \quad g^{-1} \circ f = \{(2, 9), (7, 3), (9, 8)\}$$

12

$$\frac{n}{\log n} = \left\{ (1, \frac{1}{4}), (3, \frac{1}{8}), (5, \frac{1}{16}) \right\}$$

$$\Rightarrow \left\{ (1, \frac{1}{4}), (3, \frac{1}{8}) \right\}$$

$$\log^{-1} = \left\{ (1, 4), (3, 8), (5, 16) \right\}$$

13

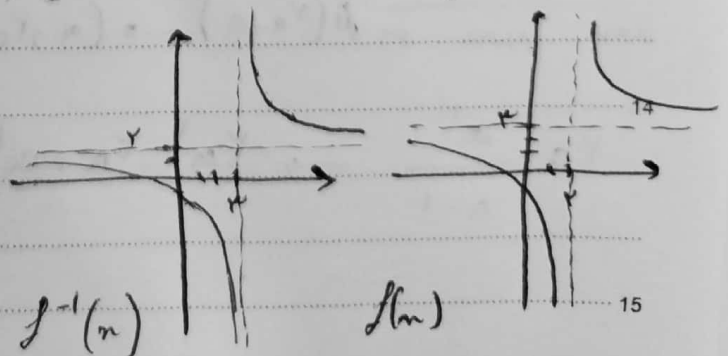
$$y = \frac{2n+1}{n-2} \rightarrow 3(-2) \neq 1 \text{ تابع هموار نیست } \rightarrow \text{ تابع هموار نیست، بد است } \quad \textcircled{5}$$

$$f^{-1} \Rightarrow y = \frac{2n+1}{n-2} \quad -4-1=-5$$

نزدکی

$$\frac{9}{2} = 4.5 \rightarrow \text{میان اعداد} \rightarrow 4$$

$$\rightarrow \text{میان اعداد} \rightarrow 4$$



15

روز بزرگداشت شیخ صفی الدین اردبیلی

Fri	Thu	Wed	Tue	Mon	Sun	Sat
03	02	01				
10	09	08	07	06	05	04



$$f(n) = |n-1| - |n-k|$$

(۷)

$$f(n) = \begin{cases} 1 & n \geq k \\ n-1 & 1 < n < k \\ -1 & n \leq 1 \end{cases}$$

$$y = 2n - k$$

$$n = \frac{y+k}{2}$$

$$a=1 \quad b=2$$

$$\rightarrow y = 2n - k$$

$$f(n) = \begin{cases} n^k + k & n \geq 1 \rightarrow [a, +\infty) \\ k_{n-1} & n \leq 0 \rightarrow (-\infty, -1] \end{cases}$$

واردن پویر ✓

(۸)

$$y = n^k + k \rightarrow n = \sqrt[k]{y+k} \rightarrow y = \sqrt[k]{n-k} \quad n \geq a$$

$$y = k_{n-1} \quad n = k_{y-1} \rightarrow k_y = n+1 \rightarrow y = \frac{n+1}{k} \quad n \geq -1$$

$$f(n) = \frac{k_{n-1}}{n-k} \left(n^k - \frac{(n^k + k_{n-1} + k_{n-1} + 1)}{n+k} \right)$$

(۹)

$$n = \frac{-ky-1}{y+k} \rightarrow ny + k_n = \sqrt[k]{y-1}$$

$$ny + ky = k_{n-1} \rightarrow y = \frac{-k_{n-1}}{n+k} \rightarrow y = \frac{-k_{n-1}}{k_{n+1}}$$

$$f(n) = \frac{n}{n^2+1} \rightarrow n = \frac{y}{y^2+1} \rightarrow ny^2 + n = y$$

$$y^2n - y + n = 0 \rightarrow \Delta = 1 - 4n^2$$

$$y = \frac{1 \pm \sqrt{1-4n^2}}{2n}$$

(۱۰)

$$f^{-1}(n) = \frac{1 + \sqrt{1-4n^2}}{2n}$$

$$Df^{-1}(n) = \left[-\frac{1}{n}, \frac{1}{n} \right] - \{0\}$$

سازمان عملیات افتخار آفرین مرصاد (۱۳۵۷ ه.ش)

Fri	Thu	Wed	Tue	Mon	Sun	Sat
03	02	01				
10	09	08	07	06	05	04
17	16	15	14	13	12	11
24	23	22	21	20	19	18
31	30	29	28	27	26	25