

$$f(x) = \begin{cases} x^2 - \varepsilon & , x > a \\ 1/x - r & , x \leq a \end{cases}$$

$$x^3 - 12x - 14 = 0 \Rightarrow x^3 - 12x + 14 = 0 \Rightarrow (x-2)(x+2)(x+3) = 0$$

$$\begin{array}{ccccccc} & & -\varepsilon & & \gamma^* & & \\ & & | & & | & & \\ - & \phi & + & \phi & + & & \end{array}$$

$$a_7, -1, \varepsilon$$

$$f^{-1}(\gamma) = \xi \Rightarrow f(\xi) = \gamma$$

$$f(x) = 3x + k \xrightarrow{x=1} f(1) = 3(1) + k = 2 \Rightarrow k = -1$$

$$f(v) = w(v) - 1 = \boxed{11}$$

$$f(A_n) = r(r_{n-1}) - 1 = 9n - 1 - 1 = \underline{9n - 2}$$

$$A(x_0, a)$$

$$f(n) = \frac{ax}{x-1} \rightarrow f^{-1}(n) = \frac{ay}{y-1} \rightarrow ra = \frac{ay}{y-1} \Rightarrow ray - ra = ay$$

$$\cancel{r}x:ay \rightarrow y=r \Rightarrow \boxed{a=r}$$

$$f\{f(\tau, \omega)(\varepsilon, v)(\nu, r)(q, y)\} \rightarrow f^{-1}\{f(\omega, \tau)(\nu, \varepsilon)(r, v)(y, q)\} / g\{f(\tau, r)(\lambda, y)(q, \omega)\} = g^{-1}\{f(\tau, \tau)(y, \lambda)(\omega, q)\}$$

الف) $f \circ f^{-1} = \{(a, a)(v, v)(x, x)(y, y)\}$

c) $f_0^{-1} f = \{ (x, x) (z, z) (y, y) (q, q) \}$

$$c) \log^{-1} = \{(x, y) | (y, x)\}$$

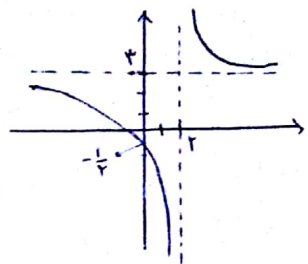
2) g^{-1} of $\{(r, a)(v, \tau)(a, \wedge)\}$

$$f = f(x, \varepsilon)(\varepsilon, \lambda)(y, \cdot) \quad g = f(x, \lambda)(\varepsilon, \mu)(y, \omega) \Rightarrow g^{-1} = f(\lambda, x)(\mu, \varepsilon)(\omega, y)$$

$$\log^{-1}, \{ (1, \varepsilon), (\varepsilon, 1), (\omega, \cdot) \}$$

$$\frac{h}{\log^{-1}} \cdot \{f(1, \frac{1}{4})(r, \frac{1}{4})(a, \frac{1}{4})\} \Rightarrow \boxed{f(1, \frac{1}{4})(r, \frac{1}{4})}$$

$$g = \frac{2x+1}{x-2} \rightarrow \text{رابطه } x \text{ و } y, \text{ معکوسه } = 2$$



$$f^{-1}(n) \Rightarrow x = \frac{2y+1}{y-2} \rightarrow xy - 2x = 2y + 1 \rightarrow$$

معکوسه

$$xy - 2y = 2x + 1 \Rightarrow y(x-2) = 2x+1 \Rightarrow y = \frac{2x+1}{x-2}$$

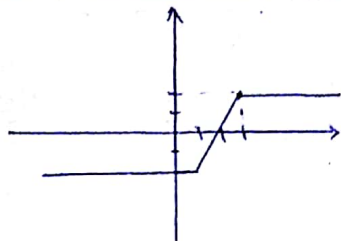


رابطه x و y
معکوسه $= 2$

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$$f(n) = |n-1| - |n-2|$$

$$f(n) = \begin{cases} 2 & x \geq 2 \\ n-2 & 1 \leq n \leq 2 \\ -2 & n \leq 1 \end{cases}$$



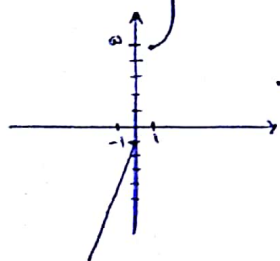
دوره
[1, 2]
معکوسه

$$[a, b] = [1, 2]$$

$$y = 2n - 2 \Rightarrow n = \frac{y+2}{2} \rightarrow x + 2 = 2y \Rightarrow y = \frac{x+2}{2}$$

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$$f(n) = \begin{cases} n^2 + 2 & n \geq 1 \\ 2n - 1 & n \leq 0 \end{cases}$$



دوره
معکوسه

$$y = x^2 + 2 \xrightarrow{\text{دوره}} x = \sqrt{y-2} \Rightarrow y^2 - x - 2 = y \Rightarrow y = \sqrt{x-2}$$

$$y = 2n - 1 \xrightarrow{\text{دوره}} x = 2y - 1 \Rightarrow 2y = x + 1 \Rightarrow y = \frac{x+1}{2}$$

$$f^{-1}(n) = \begin{cases} \sqrt{x-2} & x \geq 2 \\ \frac{x+1}{2} & x \leq -1 \end{cases}$$

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$$f(n) = n^2 - \frac{(n+1)^2}{n+2} = \frac{n^2 + 2n - n^2 - 2n - 1}{n+2} = \frac{-n-1}{n+2} \xrightarrow{\text{دوره}} x = \frac{-y-1}{y+2} \Rightarrow xy + 2n = -y - 1$$

$$\rightarrow xy + 2y = -x - 1 - y(n+2) = -x - 1 \Rightarrow y = \frac{-x-1}{x+2} \xrightarrow{\frac{x}{y}} \frac{-y-1}{2x+4} \Rightarrow a = -4, b = -2, d = 4$$

$$f^{-1}(-2) = \frac{-2(-2)-1}{2(-2)+4} = \frac{3}{0} = \infty$$

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$$f(n) = \frac{x}{x^2+1} \begin{cases} f(1) = \frac{1}{2} \\ f(\frac{1}{2}) = \frac{1}{2} \end{cases} \Rightarrow \text{معکوسه}$$

$$y = \frac{x}{x^2+1} \xrightarrow{\text{دوره}} x = \frac{y}{y^2+1} \rightarrow xy^2 + n = y - xy^2 - y + x \Rightarrow f^{-1}(n) = \frac{1 \pm \sqrt{1-4n^2}}{2n}$$

$$x \in [-\frac{1}{2}, \frac{1}{2}] - \{0\}$$

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