

۱) $y = n + [n] \rightarrow n = y + [y] \rightarrow [n] = [y + [y]] \rightarrow \frac{[n]}{r} = [y]$

$f^{-1}(n) = n - \frac{[n]}{r} \rightarrow f = f^{-1} \rightarrow x + [x] = x - \frac{[x]}{r} \rightarrow [x] = -\frac{[x]}{r} \rightarrow x \in [0, 1)$ در این حالت تبدیل

ب) $f \circ f^{-1}(n) = n = rn - \frac{r}{r} \rightarrow n = \frac{r}{r}$

۲) $f_{(n)} = f^{-1}(n) \rightarrow f \circ f_{(n)} = f \circ f^{-1}(n) = n \rightarrow f \circ f(\omega - \sqrt{4}) = \omega - \sqrt{4}$ ۲

۳) $y = x \rightarrow f^{-1}(n) = f(n) \rightarrow f(n) = f^{-1}(n) \rightarrow f(n) = n \rightarrow \frac{nx+r}{x+m+r} = x \rightarrow n+r = x$ ۳

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha+\beta}{\alpha\beta} = \frac{5}{p} \rightarrow \frac{5-\frac{1}{\alpha}-\frac{1}{\beta}}{p} = -r$

۴) $f(n) = |2n+5| - |5n-2| \rightarrow f(n) = \begin{cases} n > \frac{5}{3} \rightarrow -2n+7 \\ -\frac{5}{3} < n < \frac{5}{3} \rightarrow 5n+7 \\ n < -\frac{5}{3} \rightarrow 2n-7 \end{cases}$ ۴

$y = 2n+7 \rightarrow n = \frac{y-7}{2} \rightarrow f^{-1}(n) = \frac{y-x}{r}$

۵) $g(n) \Rightarrow y = r(f(n)-1) \rightarrow f(n) = \frac{y+1}{r} \rightarrow f^{-1}\left(\frac{y+1}{r}\right) = n \rightarrow n = \frac{1}{r} f^{-1}\left(\frac{y+1}{r}\right)$ ۵

$g^{-1}(n) = \frac{1}{r} f^{-1}\left(\frac{n+1}{r}\right) = af^{-1}\left(\frac{n+b}{c}\right) + d \rightarrow a = \frac{1}{r}, b = 1, c = r, d = 0 \rightarrow \frac{ac+d}{rb} = \frac{1}{r}$

۶) $y = (\sqrt{n+1})^2 - 1 \rightarrow \oplus \sqrt{y+1} = \sqrt{n+1} \rightarrow \sqrt{y+1} = \sqrt{y+1} - 1 \rightarrow x = y+1 - \sqrt{y+1} = y+1 - \sqrt{y+1}$ ۶

$\rightarrow f^{-1}(n) = x+1 - \sqrt{x+1} \rightarrow D_{f^{-1}} = R_f = [0, +\infty)$

۷) $f(n) = n \rightarrow x-1 + r^n = n \rightarrow r^n = 1 \rightarrow x = 0 \rightarrow A \setminus \{0\} \rightarrow$ ۷

۸) $D_y \rightarrow f^{-1}(n) \geq n \xrightarrow{f(n)=t} t \geq f(n) \rightarrow t \geq t^r + \epsilon t \rightarrow \dots \geq t^r + r\epsilon \rightarrow \dots \geq t(t^r + r)$ ۸

$t \leq 0 \xrightarrow{\text{محدود}} f(n) = 0 \rightarrow x \in (-\infty, 0] \rightarrow$ ۹

۹) $f^{-1}(n+r) = x-r \rightarrow f(x-r) = x+r \rightarrow -t + \sqrt{t} + t = x+r \rightarrow -x+r + \sqrt{x+1} = x+r$ ۹

$\sqrt{x+1} = 2x+1 \rightarrow x+1 = \epsilon x^2 + 1 + \epsilon x \rightarrow x(\epsilon x + \epsilon) = \dots \rightarrow x = \frac{1}{\epsilon} \times$

$$\sqrt{y} = -\sqrt{x} + r \rightarrow y = (r - \sqrt{x})^2 \rightarrow \sqrt{f(x)} = |r - \sqrt{x}| = r - \sqrt{x} \rightarrow \cdot \sqrt{x} \leq r \rightarrow \cdot x \leq r^2 \quad (1.)$$

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

