

تلف 11 دفتر A (دوره 1400)

گفتگوی

$$f(x) = a + [x] \rightarrow y = a + [x]$$

(الف) -

$$x = a + [y] \rightarrow y = a - [y]$$

$$[x] = [y + [0]] \Rightarrow [x] = y [y] \Rightarrow [y] = \frac{[x]}{y}$$

$$f^{-1}(x) = a - \frac{1}{y} [x] \rightarrow y + \frac{1}{y} [x] = x - \frac{1}{y} [x]$$

$$\frac{y}{x} [x] = 0 \Rightarrow [x] = 0$$

$$\Rightarrow 0 \leq x < 1 \quad y = x$$

$$f \circ f^{-1}(x) = x$$

$$\Rightarrow x = x - \frac{y}{y}$$

(ب)

$$D f \circ f^{-1}(x) = D f^{-1}$$

$$D f^{-1} = R f$$

$$\left(\frac{f}{f} = x \right)$$

$$= \frac{y}{x} \cdot \frac{1}{y} (x)$$

$$0 \leq x < 1 \rightarrow y = x \Rightarrow$$

$$0 \leq y < 1 \Rightarrow \frac{y}{x} \leq y \leq x - \frac{y}{x} < \frac{1}{y}$$

در صورتی که

$$y = \frac{ax + r}{rx + b}$$

$$\left. \begin{array}{l} \text{بند 1} \\ \text{بند 2} \end{array} \right\} \Rightarrow \frac{ax + r}{rx + b} = \frac{a}{r} \Rightarrow y = x \Rightarrow \frac{a}{r} = -\frac{b}{r}$$

$$\frac{-bx + r}{rx + b} = \frac{-b(0 - \sqrt{r}) + r}{r(0 - \sqrt{r}) + b} = \frac{-b + b\sqrt{r} + r}{r - r\sqrt{r} + b}$$

$$a = -b \Rightarrow a + b = 0$$

$$f \circ f(x) = f \circ f^{-1}(x) = x \rightarrow f \circ f(0 - \sqrt{r}) = 0 - \sqrt{r}$$

$$y = \frac{mx + r}{x + m + r} \Rightarrow \frac{mx + r}{x + m + r} = -\frac{(m + r)x + r}{x - m}$$

در صورتی که

$$f^{-1}(x) = \frac{(-m - r)x + r}{mx + r - m(r + x + r)} \Rightarrow mx + r - m(r + x + r) = -(m + r)x + r - (m + r)x + r + r + r + r$$

در صورتی که

$$(x + r)x + r \pm (y + r)x + (-y - r) = 0 \quad f(x) = f^{-1}(x)$$

$$\frac{1}{x} + \frac{1}{b} = \frac{x + b}{x b} = \frac{S}{p} = \frac{-b}{a} = \frac{-b}{c} = \frac{-b}{c} = \frac{-(y + r)}{-(y + r)} = 1$$

$$\Rightarrow x \neq -\frac{r}{r}$$

$$y = \sqrt{(2x+3)^2} - \sqrt{(3x-2)^2}$$

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$$= |2x+3| - |3x-2|$$

$2x+3=$
 $3x-2=$
 $x=-5$
 $x=2$

$$Df^{-1} = Rf$$

$x \geq 0$
 $-2x-5 \leq -2 \rightarrow -2x+3 \leq 0, 1$
 $y = -2x+3$
 $x-3 = -2y$
 $\frac{x-3}{-2} = y \rightarrow x \leq \frac{2y}{-1}$

$-2, 3$
 $2x+3-3x-2$
 $-x+1$
 $2x+3-3x-2$
 $-x+1$
 $2x+3-3x-2$
 $-x+1$

$$g(x) = 2f(3x) - 1 = t \rightarrow g(x) = t$$

$$x = g^{-1}(t)$$

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$$2f(3x) - 1 = t$$

$$2f(3x) = t+1 \rightarrow f(3x) = \frac{t+1}{2} \rightarrow 3x = f^{-1}\left(\frac{t+1}{2}\right)$$

$$g^{-1}(t) = \frac{f^{-1}\left(\frac{t+1}{2}\right)}{3} \Rightarrow g^{-1}(x) = \frac{1}{3} f^{-1}\left(\frac{x+1}{2}\right) + 0$$

$\downarrow$
 a

$$\frac{ac+d}{rb} = \frac{\frac{r}{r} + 0}{r} = \frac{1}{r}$$

$$y = x + 2\sqrt{x}$$

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$$y = (\sqrt{x}+1)^2 - 1$$

$$Df^{-1} = Rf \Rightarrow Rf = [0, +\infty)$$

$$y+1 = (\sqrt{x}+1)^2$$

$$\sqrt{y+1} = \sqrt{x}+1$$

$$\sqrt{y+1}-1 = \sqrt{x} \rightarrow y+1-1-2\sqrt{y+1} = x$$

$$x-2\sqrt{y+1}+2 = y$$

۷ - تابع اکسپوننسیالی برای بررسی اینکه با وارون حقیقتاً برقرار دارد یا نه می‌توانیم

$$y = x-1 + 2^x$$

$$x-1 + 2^x = x$$

$$2^x = 1 \Rightarrow x = 0$$

$\downarrow$
 برقرار

