

$$y = x + [x] \Rightarrow [y] = 2[x]$$

$$[y] = 2(y - x) = 2y - 2x$$

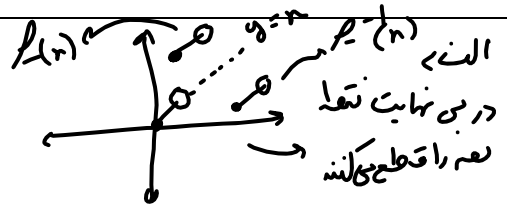
$$\text{و از این} \Rightarrow [x] = 2x - 2y$$

$$2y = 2x - [x] = f^{-1}(x) = x - \frac{[x]}{2}$$

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

$$x = 2x - \frac{[x]}{2} \Rightarrow x = \frac{[x]}{2} \Rightarrow x \notin \mathbb{R}_f$$

معادله جواب ندارد



$$\frac{a}{x} = \frac{-b}{x} \Rightarrow f = f^{-1}$$

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

$$\Rightarrow f \circ f(\Delta - \sqrt{4}) = \Delta - \sqrt{4}$$

$$f^{-1}(x) = \frac{-(m+3)x + 3}{x-m}$$

$$f^{-1}(x) = f(x) \Rightarrow \frac{-(m+3)x + 3}{x-m} = \frac{mx + 3}{x+m}$$

$$\Rightarrow (-2m-3)x^2 - 3mx + 4m = 0 \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha+\beta}{\alpha\beta} = \frac{\frac{3m}{-2m-3} - 3}{\frac{4m}{-2m-3}} = \frac{1}{2}$$

$$f(x) = |2x+1| - |2x-2|$$

$$f(x) = \begin{cases} -3x+3 & ; x > \frac{3}{2} \\ 3x-3 & ; -\frac{1}{2} < x < \frac{3}{2} \\ 3x-1 & ; x \leq -\frac{1}{2} \end{cases} \rightarrow R = (-\infty, 1] \quad \begin{aligned} y = -3x+3 & \xrightarrow{\text{و از این}} x = -\frac{y-3}{3} \\ y = 3x-3 & \Rightarrow f^{-1}(x) = \frac{3-x}{3} \quad x \leq 1 \end{aligned}$$

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

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

$$\text{و از این} \Rightarrow x = \frac{1}{2}f(3y) - 1$$

$$\frac{n+1}{2} = f(3y) \quad a = \frac{1}{3} \quad d = 0$$

$$\frac{1}{2}f^{-1}\left(\frac{n+1}{2}\right) = y \Rightarrow b = 1, c = 2$$

$$\frac{a+c}{2b} = \frac{1}{3}$$

1

2

3

4

5

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

$$\text{واری} \rightarrow n = (\sqrt{y} + 1)^2 - 1$$

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

$$y = n + 2 - 2\sqrt{n+1} \Rightarrow f^{-1}(n) = n + 2 - 2\sqrt{n+1}$$

$$D_{f^{-1}} = R_f = [0, +\infty)$$

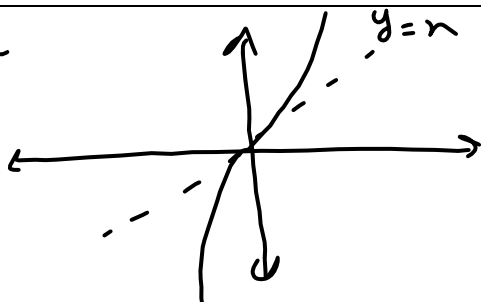
$$f(n) \text{ گزینش می} \Rightarrow f(n) = f^{-1}(n) = n$$

$$\Rightarrow n - 1 + 2^n = n \Rightarrow 2^n = 1 \Rightarrow n = 0$$

توی ۰

$$f(n) = n^2 + 5n$$

$$\text{واری} \rightarrow n = 0$$



$$\Rightarrow f^{-1}(n) > n \Rightarrow n \in (-\infty, 0]$$

$$y = \sqrt{f^{-1}(n) - n}$$

$$\Rightarrow f^{-1}(n) > n \Rightarrow n \in (-\infty, 0] \Rightarrow \text{این که در اینجایی صحیح در اینجاست}$$

$$f(n) = -(\sqrt{n+4} - \frac{1}{4})^2 + \frac{14}{4} \Rightarrow f^{-1}(n) = (\sqrt{\frac{14}{4} - n} + \frac{1}{4})^2 - 4$$

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

$$g(n) = n - 2$$

$$n - 2 = \frac{1}{4} - n + \sqrt{\frac{1}{4} - n} \Rightarrow 2n - 2\frac{1}{4} = \sqrt{\frac{1}{4} - n}$$

واری

واری

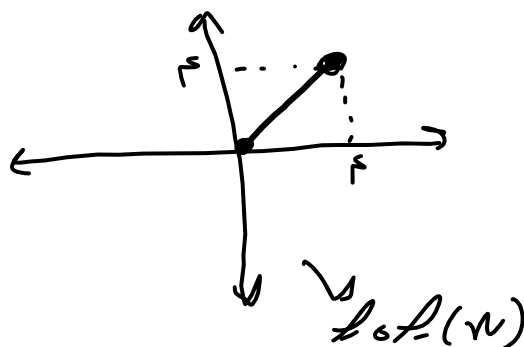
این که در اینجایی صحیح در اینجاست

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

$$\text{واری} \rightarrow \sqrt{y} + \sqrt{n} = 2 \Rightarrow f = f^{-1}$$

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

$$2 \geq n \geq 0$$



۱۰