

الف $x + [x] = y \quad x = y + [x] \rightarrow [x] = [y + [x]] \quad [x] = 1[y]$ (1, 0)
 $[y] = \frac{[x]}{1} \quad x = y + \frac{[x]}{1}$ (1, 2, 5) بردارهای

$f^{-1}(x) = x - \frac{[x]}{p} \quad f^{-1}(x) = f(x) \quad x - \frac{[x]}{p} = x + [x] \quad \frac{p[x]}{p} = 0$

$[x] = 0$ بسیار به خود 3/4 و 0 و -1 و 1 و 2 و 3 بردارها از هر عدد زوج تا عدد فرد بعدی است

ب) $f \circ f^{-1}(x) = x \quad x = 1x - \frac{3}{1} \quad x = \frac{3}{1}$ جواب صحیح وجود ندارد

$f \circ f^{-1}(x) = f \circ f^{-1}(x) = x \quad f \circ f^{-1}(x - \sqrt{4}) = x - \sqrt{4}$ -2 با توجه به سوال $f^{-1}(x) = f(x)$ است

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

$f(x) = |2x + \omega| - |\omega x - 2| \rightarrow \frac{-\frac{\omega}{2}}{3m - \sqrt{11, \omega}} \quad \frac{2}{\omega}$ -2
 $y = -3x + 5 \quad x = -3y + 5$
 $3y = -m + 5 \quad y = -\frac{1}{3}m + \frac{5}{3} \quad f^{-1}(x) = -\frac{1}{3}x + \frac{5}{3}$ (2)

~~$f(x) = m + \sqrt{x+1} - 1 \quad f(x) = (\sqrt{x+1})^2 - 1 \quad m = (\sqrt{y+1})^2$~~
 ~~$y = \sqrt{m+1} - 1$~~
 ~~$f^{-1}(m) = (\sqrt{m+1} - 1)^2$~~

$g(x) = f \quad g^{-1}(x) = x \quad \frac{b+1}{p} = f(\frac{b+1}{p}) \quad x = \frac{f^{-1}(b+1)}{p}$ -3 (1, 0)
 $g^{-1}(x) = \frac{1}{p} f^{-1}(\frac{b+1}{p}) + 0$ a < 1/3
b ≥ 1
c ≥ 2
d = 0
 $\frac{ac+d}{pb} \geq \frac{1}{p}$

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

$$y = (\sqrt{x+1} - 1)^2 \quad f^{-1}(x) = (\sqrt{x+1} - 1)^2 \quad x \geq 0$$

چون $x-1 + \sqrt{x} = x \quad \sqrt{x} = 1 \quad x=0$

در $x=0$ $f(0)=0$ $f^{-1}(0)=0$

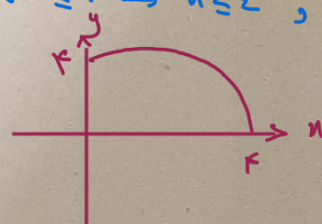
$$y = -x + \sqrt{x+1}$$

$$\sqrt{y} = -\sqrt{x} + 1 \quad y \geq 0$$

$$\sqrt{x} \leq 1 \rightarrow x \leq 1, x \geq 0$$

$$Df = [0, 1] \quad I$$

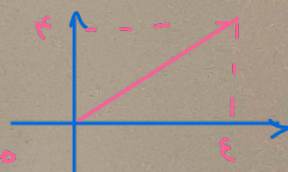
$$Rf = [0, 1] \quad II$$



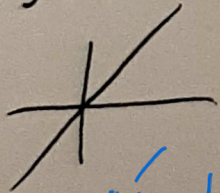
$$I \cap II \rightarrow Df = Rf \rightarrow f(x) = f^{-1}(x)$$

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

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



$$y = (1 - 1 + \sqrt{x})^2 \quad y = x \rightarrow x \geq 0$$



① $f(x)$ و $f^{-1}(x)$ متقابل برابری هستند و $y=x$ قطع مرتبه



$$f^{-1}(x) \geq x \rightarrow f(x) \leq x$$

جایی که $f(x) \leq x$ نیاز است $f^{-1}(x) \geq x$

$$x^2 + \epsilon x \leq x \rightarrow x(x^2 + \epsilon) \leq 0 \rightarrow x \leq 0$$

$$f(x) \xrightarrow{\text{نیاز}} f^{-1}(x) \xrightarrow{\text{نیاز}} f^{-1}(x+\epsilon) \rightarrow g(x) = f^{-1}(x+\epsilon) \quad ②$$

$$x - \epsilon \leq f^{-1}(x+\epsilon) \xrightarrow{f} f(x-\epsilon) \leq x+\epsilon$$

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

$$\epsilon x^2 + 3x = 0 \rightarrow x < 0 \rightarrow x = -\frac{\epsilon}{3}$$

