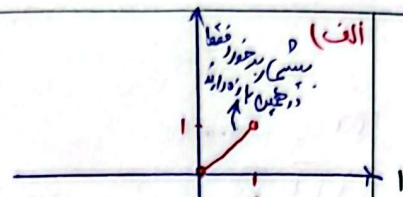


(ب)  
 $f \circ f^{-1}(x) = x \rightarrow x \in R_f \cap D_{f^{-1}}$

$x = 2m - \frac{3}{4} = 2 \times \frac{3}{4}$

← در مورد f وجود ندارد پس معادله جواب ندارد!!



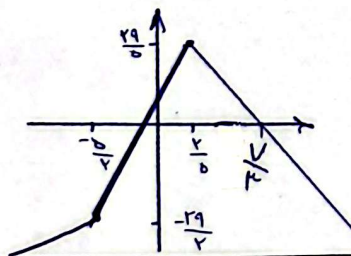
$\frac{a}{4} = \frac{-b}{4} \Rightarrow a = -b \Rightarrow f \circ f(x) = x \Rightarrow f \circ f(\delta - \sqrt{4}) = \delta - \sqrt{4}$   
 معادله نامعین معادله نامعین

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

$\frac{1}{x} + \frac{1}{p} = \frac{a+b}{ab} = \frac{5}{p} \Rightarrow \frac{p(m+3)}{2m+3} = 1$   
 معادله نامعین معادله نامعین

$\frac{-3x-mx+3}{x-m} = \frac{mx+3}{x+m+3} \Rightarrow \frac{-3x^2-3mx+3x+3}{(m+3)x^2+(4+m)x-(4m+9)}$

$|2x+6| - |6x-2|$



$\frac{-\frac{b}{4}}{2m-3} = \frac{\frac{3}{4}}{2m+3} \Rightarrow \frac{-\frac{29}{4}}{2} = \frac{\frac{3}{4}}{b} \Rightarrow R_f = (-\infty, \frac{29}{6}]$

$f^{-1}(x) = \frac{3-x}{4} \quad x \leq \frac{29}{6}$

$g(x) = t \rightarrow f(2x) = \frac{t+1}{2} \Rightarrow 2x = f^{-1}(\frac{t+1}{2}) \Rightarrow x = \frac{1}{2} f^{-1}(\frac{t+1}{2})$   
 $\hookrightarrow g^{-1}(t) = x$

$g^{-1}(\frac{a}{c}) = \frac{1}{2} f^{-1}(\frac{a+1}{c})$   
 $\frac{1}{x} \times \frac{1}{x} = \frac{1}{x^2}$

استخرج

$$\left. \begin{array}{l} x_{\min} = -1 \\ y_{\min} = -1 \end{array} \right\} \Rightarrow \text{دالة } f \text{ على } [0, +\infty)$$

$$f(x) = \sqrt{x+1} - 1$$

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

2

$$f^{-1}(x) \geq x \xrightarrow[\text{مميز } f]{\text{از طرفين}} x \geq f(x) \Rightarrow x^2 + 3x \leq 0$$

{0, -3}  
منه صحيح لما في

$$\frac{-\sqrt{3} \cdot \sqrt{3}}{-1+1-1+1}$$

$$(-\infty, -\sqrt{3}] \cup [0, \sqrt{3}]$$

$$x = y + \sqrt{y+1} \xrightarrow[\text{نضع } x]{\text{نضع } y} x = (y+1) + \sqrt{y+1} = g(y)$$

$$x = y + 3 \Rightarrow y + 3 = y + \sqrt{y+1} + 1 \Rightarrow$$

$$y = \sqrt{y+1} + 2 \Rightarrow$$

$$y^2 + 4y + 4 = y + 1 \Rightarrow$$

$$y^2 + 3y + 3 = 0 \quad \Delta = 9 - 12 = -3 < 0 \Rightarrow \text{لا يوجد حلا حقيقي}$$

$$\sqrt{y} \leq \sqrt{1-\sqrt{y}} \Rightarrow y \leq (1-\sqrt{y})^2$$

$$f \circ f(x) = (1 - \sqrt{1-\sqrt{x}})^2 \leq (1 - 1 + \sqrt{x})^2 = x$$

$$D_{f \circ f} = \{x \in D_f : f(x) \in D_f\}$$

