

$$\text{مثال } y = m + fn \rightarrow [y] = f[m]$$

$$n \times y = [y] \rightarrow y = n \times f[m] \Rightarrow f^{-1}m = n \times f[m]$$

$$n \times f[m] = n + f[m] \Rightarrow f[m] = 0 \Rightarrow m = 1$$

المعادلة (1)

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

فـ f^{-1} ليس دالة عكسية

في f و f^{-1}

f
 f^{-1}

$$\text{مثال 3: } f(x) = \frac{a}{x} - \frac{b}{x} \Rightarrow a = -b \quad a+b=0 \Rightarrow \text{ليس دالة عكسية}$$

$$f(f^{-1}(a)) = f^{-1}(f(a)) = a$$

$$y = x \rightarrow x = \frac{m+n}{n+m+p} \rightarrow \frac{m+n}{n+m+p} + \frac{m+n}{n+m+p} + \frac{m+n}{n+m+p} = \frac{m+n}{n+m+p} \Rightarrow \frac{m+n}{n+m+p} = 0$$

$$\Rightarrow x = \frac{-\frac{1}{2} \pm \sqrt{\frac{1}{4} + 1}}{1} = \frac{-\frac{1}{2} \pm \sqrt{\frac{5}{4}}}{1}$$

$$\frac{1}{x} + \frac{1}{13} \Rightarrow \frac{1}{-\frac{1}{2} + \sqrt{\frac{5}{4}}} + \frac{1}{-\frac{1}{2} - \sqrt{\frac{5}{4}}} = \frac{-4 - \sqrt{5} - 4 + \sqrt{5}}{9 - 5} = \frac{-8}{4} = -2$$

$$f(m) = \frac{m+a}{m} - \frac{a}{m} = 1$$

$$\begin{aligned} & \frac{m+a}{m} - \frac{a}{m} = 1 \Rightarrow \frac{m+a-a}{m} = 1 \Rightarrow \frac{m}{m} = 1 \Rightarrow 1 = 1 \\ & \frac{m+a}{m} - \frac{a}{m} = 1 \Rightarrow \frac{m+a-a}{m} = 1 \Rightarrow \frac{m}{m} = 1 \Rightarrow 1 = 1 \end{aligned}$$

$$f^{-1} = \frac{1}{f} = \frac{1}{\frac{m+a}{m} - \frac{a}{m}} = \frac{1}{\frac{m}{m}} = 1 \Rightarrow f^{-1} = 1$$

$$g(x) = y \Rightarrow g^{-1}(y) = x$$

$$y = r f(r(x)) - 1 \Rightarrow f(r(x)) = \frac{y+1}{r} \Rightarrow r(x) = f^{-1}\left(\frac{y+1}{r}\right) \Rightarrow x = \frac{1}{r} f^{-1}\left(\frac{y+1}{r}\right)$$

$$g^{-1}(y) = x \Rightarrow g^{-1}(y) = \frac{1}{r} f^{-1}\left(\frac{y+1}{r}\right) \Rightarrow a = \frac{1}{r} \quad b = 1 \quad c = r \quad d = 0$$

$$\frac{a c + d}{r b} = \frac{\frac{1}{r} r}{r} = \frac{1}{r}$$

$$f(x) = x + 2\sqrt{x} \Rightarrow x \geq 0 \Rightarrow R_f = [0, +\infty) \Rightarrow R_f = [9, +\infty)$$

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

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

$$\Rightarrow y = x + 2 - 2\sqrt{x+1} \Rightarrow x \geq 0$$

$$x = y \Rightarrow x = x - 1 + r^x \Rightarrow 1 - r^x \Rightarrow x = 0 \quad \text{ملاحظة: } 1 - r^x = 0 \Rightarrow x = 0$$

$$f^{-1}(x) = t \Rightarrow f(t) = x = t^3 - t^2$$

$$x = f^{-1}(x) \Rightarrow x = t - (t^3 - t^2) \geq 0 \Rightarrow t^3 - t^2 \leq 0$$

$$\Rightarrow t(t^2 - t) \leq 0 \Rightarrow t = 0 \quad t = (-\infty, 0]$$

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

$$-x + \sqrt{x+r} = x + r \Rightarrow (x+r)^2 = (x+r)^2 \Rightarrow x^2 + 2rx + r^2 = x^2 + 2rx + r^2 \Rightarrow 0 = 0$$

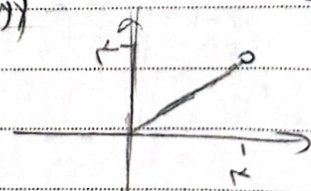
$$x = -rv \pm \sqrt{rv^2 - 4rv} \Rightarrow \frac{x - r}{r} = v \Rightarrow x = r(v^2 + 1)$$

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

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

$$x \geq 0$$

$$r - \sqrt{x} \geq 0 \Rightarrow \sqrt{x} \leq r \Rightarrow x \leq r^2$$



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