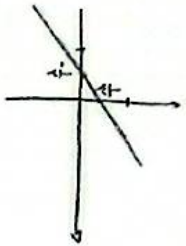


۲) $f(x) = \frac{y^2 x - 1}{y} \rightarrow f^{-1}(x) = \frac{y^2 x + 1}{y^2}$ $\frac{x}{y^2} = y^2 \cdot \frac{1}{y^2} = \frac{1}{y^2}$ $\frac{y^2}{y^2} = 1$ $x = -\frac{1}{y^2}$ $(-\frac{1}{y^2}, 0)$



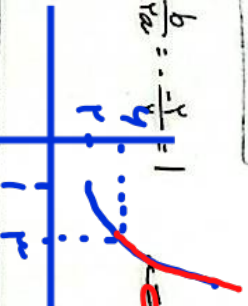
$s = \frac{1}{y^2} \left(\frac{1}{y^2} \times \frac{1}{y^2} \right) = \frac{1}{y^4}$ ✓

الف) $y = x^y - y^2 x + y^3$, $D = [1, +\infty) \rightarrow x_s = -\frac{b}{a} = -\frac{y^2}{y^2} = -1$ در این دامنه وارد نمی شود.

$f(x) = (x-1)^y + y \rightarrow f^{-1}(x) = \sqrt[y]{x-y} + 1$, $D_{f^{-1}} = [y, +\infty)$ ✓

ب) $y = x^y - y^2 x + y^3$, $D = [y, +\infty) \rightarrow x_s = -\frac{b}{a} = -\frac{y^2}{y^2} = -1$ در این دامنه وارد نمی شود.

$f^{-1}(s) = \sqrt[s]{s-1} + 1$ $D = [y, +\infty)$



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



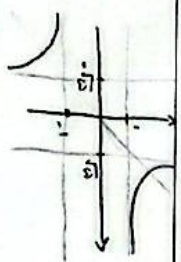
$f(x) = y^2 x - |y^2 - 1| = y^2 x - y^2$ $D_f = (-\infty, y]$

$f^{-1}(x) = \frac{x+y^2}{y^2}$ $D_{f^{-1}} = (-\infty, y]$ ✓

چرا صاف رو حساب نکرد؟!



$y = \frac{x}{\sqrt{x^2 - 1}}$ $x, y \rightarrow$ کم

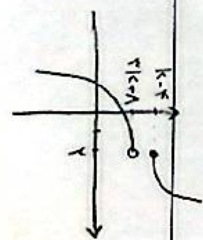


یکم یک است. ✓

$y = \frac{x}{\sqrt{x^2 - 1}} \rightarrow y^2 = \frac{x^2}{x^2 - 1} \rightarrow x^2 = \frac{-\Delta y^2 - 0}{y^2 - 1} = \frac{\Delta y^2}{y^2 - 1} \rightarrow x = \pm \sqrt{\frac{\Delta y^2}{y^2 - 1}} \rightarrow f^{-1}(x) = \sqrt{\frac{\Delta y^2}{y^2 - 1}}$

$g(x) \begin{cases} x^y - y^2 x + y^3 & x \geq y \\ -x^y + y^2 x + y^3 & x < y \end{cases}$

$y^2 k + 1 \leq k - y^2 \rightarrow y^2 k \leq -1 - y^2$



$k \leq -y$

$k \in (-\infty, -y]$ ✓

$$f(x) \begin{cases} x \geq 0 \\ x < 0 \end{cases} \begin{cases} x \\ \frac{x}{y} \end{cases} \rightarrow f^{-1}(x) \begin{cases} x \geq 0 \\ x < 0 \end{cases} \begin{cases} \frac{x}{y} \\ x \end{cases}$$

$$f^{-1}(x) = ax + b | x | = \frac{y}{x} x - \frac{1}{x} | x |$$

$$a = \frac{\frac{1}{x} + \frac{1}{y}}{y} = \frac{y}{x}$$

$$b = -\frac{1}{x} \quad ab = \frac{y}{x} (-\frac{1}{x}) = -\frac{y}{x^2}$$

$$f(y) = \frac{y+x}{y+m} = \frac{1}{y+m} = -1 \rightarrow m = -y$$

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

$$f_0 f^{-1}(x) = x, x \in D_{f^{-1}} \rightarrow D_{f^{-1}} = \mathbb{R} - \{y\}$$

$$y = f_0 f^{-1}(x) + f^{-1}(x) = x + \frac{y+x+y}{x-y} = x \rightarrow \frac{y+x+y}{x-y} = 0 \rightarrow x = -\frac{y}{y}$$

$$y - g(\frac{x}{y}) = t \rightarrow g(\frac{x}{y}) = y - t \rightarrow \frac{x}{y} = g^{-1}(y - t) \rightarrow x = y g^{-1}(y - t)$$

$$f(y - yx) = t \rightarrow y - yx = f^{-1}(t) \rightarrow x = \frac{y - f^{-1}(t)}{y}$$

$$\begin{cases} x = y g^{-1}(t) \\ x = \frac{y - f^{-1}(t)}{y} \end{cases} \rightarrow \frac{y - f^{-1}(t)}{y} = y g^{-1}(t) \rightarrow y = y g^{-1}(t) + f^{-1}(t)$$

$$y = \frac{\partial x - 1^y}{\partial x - 1^y} \rightarrow -y = \frac{-\partial x - 1^y}{x+1} \rightarrow -y = \frac{-\partial x - 1^y}{x+1} + 1 = \frac{-\partial x - 1^y}{x+1} \rightarrow -y = \frac{-\partial x - 1^y}{x+1}$$

$$f(x) = \frac{10x - yA}{x - y} \rightarrow f^{-1}(x) = \frac{y^2 x - yA}{x - 10}$$

$$\frac{10x - yA}{x - y} = \frac{y^2 x - yA}{x - 10}$$

$$(10x - yA)(x - 10) = (y^2 x - yA)(x - y) \rightarrow 10x^2 - 10xy - yAx + 10yA = y^2 x^2 - y^2 xy - yAx + y^2 A$$

$$f^{-1} = \frac{y+1}{x-1} = \frac{y+1}{x-1} \rightarrow y^2 - yx - y = 0 \rightarrow 5 = -\frac{y}{x}$$

$$y = x + y[x] \rightarrow [y] = [x + y[x]] \rightarrow [y] = \partial[x] \rightarrow [x] = \frac{[y]}{\partial}$$

$$y = x + \frac{x}{\partial}[y] \rightarrow x = y - \frac{x}{\partial}[y] \rightarrow y = x - \frac{x}{\partial}[x] = g(x)$$

$$(f-g)(x) = f(x) - g(x) = x + y[x] - x + \frac{x}{\partial}[x] = \frac{y}{\partial}[x]$$