

ساریا اسپانی بازهم دقت C شماره اول

$$f(x) = \begin{cases} x^3 - k & x > a \\ 11x - k_0 & x \leq a \end{cases}$$

$$x^3 - k = 11x - k_0 \quad (1)$$

$$x^3 - 11x + 14 = 0$$

$$\rightarrow (x-2)^2(x+7) = 0$$

$$\begin{array}{r} x^3 - 11x + 14 \quad | \quad x-2 \\ -x^3 + 11x^2 \\ \hline 11x^2 - 11x + 14 \end{array}$$

$$\begin{array}{r} 11x^2 - 11x + 14 \\ -11x^2 + 22x \\ \hline -11x + 14 \end{array}$$

$$\begin{array}{r} -11x + 14 \\ +11x - 14 \\ \hline 0 \end{array}$$

$$\begin{array}{r} -x^2 \quad x \\ - \quad + \quad + \end{array}$$

$$a \in [-k_0, +\infty)$$

$$f(x) = kx + k$$

$$f^{-1}(x) = k$$

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

$$f(k) = k + k = k \rightarrow \boxed{k = -10} \rightarrow kx - 10$$

$$\frac{k-k}{k} = k \rightarrow \boxed{k = -10}$$

$$f(v) = k(v) - 10 = (11)$$

$$f(f(x)) = f(kx - 10) = k(kx - 10) - 10 = 9x - k_0 - 10 = 9x - k_0$$

$$f(x) = \frac{ax}{x-1}$$

$$A(x, a)$$

$$f^{-1}(x) \Rightarrow x = \frac{ay}{y-1} \rightarrow xy - x = ay \rightarrow y = \frac{x}{x-a}$$

$$f^{-1}(x) \rightarrow \frac{x}{x-a} A(x, a) = \frac{xa}{xa-a} = a = k$$

$$g = \{(3, 2), (1, 4), (9, 5)\} \quad f = \{(3, 5), (4, 2), (9, 4)\} \quad (E)$$

$$a) f \circ f^{-1} = \{(5, 5), (2, 2), (4, 4)\}$$

$$b) f^{-1} \circ f = \{(3, 3), (4, 4), (2, 2), (9, 9)\}$$

$$c) f \circ g^{-1} = \{(3, 5), (5, 4)\}$$

$$d) g^{-1} \circ f = \{(3, 4), (4, 1), (2, 3)\}$$

$$\frac{h}{f \circ g^{-1}} = \rightarrow g^{-1} = \{(1, 2), (2, 4), (5, 9)\} \quad (a)$$

$$\frac{h}{f \circ g^{-1}} = \{(1, \frac{1}{2}), (2, \frac{1}{4})\}$$

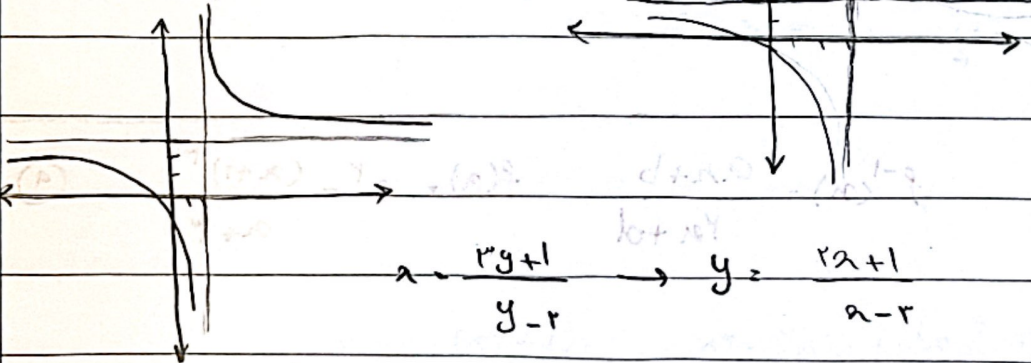
$$\rightarrow 1 \rightarrow 2, 4 \quad 2 \rightarrow 4, 16 \quad 5 \rightarrow 9, 25$$

$$f \circ g^{-1} = \{(1, 4), (2, 16), (5, 25)\}$$

$$y = \frac{3x+1}{x-2}$$

$$y = \frac{3x+1}{x-2} \quad (4)$$

$$y = \frac{3x+1}{x-2}$$



$$x = \frac{3y+1}{y-2}$$

$$y = \frac{3x+1}{x-2}$$

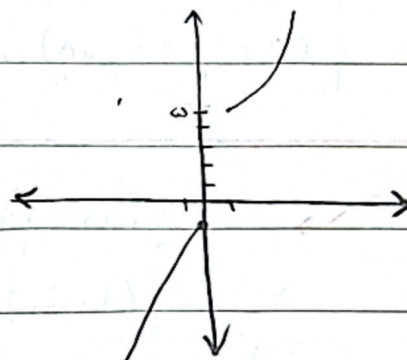
$$f(x) = |x-1| - |x-r|$$

(v)

$$\begin{array}{c|c|c} & 1 & r \\ \hline -r & r(x-1) & r \end{array} \rightarrow \begin{array}{l} a=1 \\ b=r \end{array}$$

$$x = ry - r \rightarrow \frac{x+y}{r} = y$$

$$f(x) = \begin{cases} x^r + r & x \geq 1 \\ rx - 1 & x \leq 0 \end{cases}$$



(1)

$$\begin{array}{c|c|c} x & 0 & -1 \\ \hline y & -1 & -\Delta \end{array}$$

$$x = y^r + r \rightarrow \sqrt[r]{x-r} = y$$

$$Df^{-1} = Rf \rightarrow 1 \rightarrow 1^r + r = \Delta$$

$$Df^{-1} = [\Delta, +\infty)$$

$$x = ry - 1 \rightarrow \frac{x+1}{r} = y \rightarrow Df^{-1} = (-\infty, -1]$$

$$f^{-1}(x) = \begin{cases} \sqrt[r]{x-r}, & x \geq \Delta \\ \frac{x+1}{r}, & x \leq -1 \end{cases}$$

$$f^{-1}(b) = ?$$

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

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

(9)

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

$$x = \frac{-(1+ry)}{y+r}$$

$$xy + rx = -1 - ry$$

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

Scanned with

$$\frac{(-1-rn) \times r}{(n+r) \times r} = \frac{a \times b}{r \times d} \rightarrow \frac{-4n-r}{r \times 4} = \frac{a \times b}{r \times d} \rightarrow \boxed{b = -r}$$

$$f^{-1}(-r) = \frac{-1+4}{1} = \textcircled{2}$$

$$f(x) = \frac{x}{x^r+1} \rightarrow x = \frac{y}{y^r+1} \rightarrow xy^r + x = y \quad \textcircled{10}$$

$$xy^r \cdot y + x = 0$$

$$\rightarrow y = \frac{1 \pm \sqrt{1-4x^r}}{2x} \rightarrow y, x$$

$$y = \frac{1 + \sqrt{1-4x^r}}{2x}$$