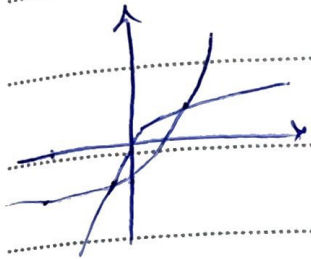


۲۰

لایا ابراهیم تکیه شماره ۱۱



$$a^3 - 4 > 12a - 2$$

$$a^3 - 12a + 14 > \rightarrow (a^3 + 12a - 4a^2 - 1)$$

$$-24a + 24 + 4a^2 = \rightarrow (a-2)^2 + 4(a^2 - 4a + 4)$$

$$= (a-2)^2 (a+2)^2 < \frac{2}{-4}$$

$$\rightarrow a < -4 \text{ و } a > 4 \text{ است. اگر } a < -4 \text{ باشد یک یک است}$$

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

$$w(3x-10) - 10 = 9x - 4 \rightarrow 9x = 4$$

$$3x + 5 \rightarrow 3x + 5 + 10 = 2 \rightarrow 3x = -1$$

$$2a = \frac{a^2}{a-1} \rightarrow 2a^2 - 2a = a^2 \rightarrow a^2 - 2a = 0 \rightarrow a(a-2) = 0$$

$$a = 0, a = 2$$

$$K = \{(5,5), (7,7), (2,2), (4,4)\}$$

$$B = \{(3,3), (4,4), (7,7), (9,9)\}$$

$$Z = \{(2,0), (5,4)\}$$

$$J = \{(3,9), (7,3), (9,8)\}$$

$$g^{-1} = \{(1,2), (3,4), (5,4)\}$$

$$\frac{h}{f \circ g^{-1}} = \left\{ \left(1, \frac{2}{4}\right), \left(3, \frac{4}{8}\right), \left(5, \frac{4}{2}\right) \right\} \rightarrow \left\{ \left(1, \frac{1}{2}\right), \left(3, \frac{1}{2}\right) \right\}$$

$$f \circ g^{-1} = \{(1,4), (3,8), (5,0)\}$$

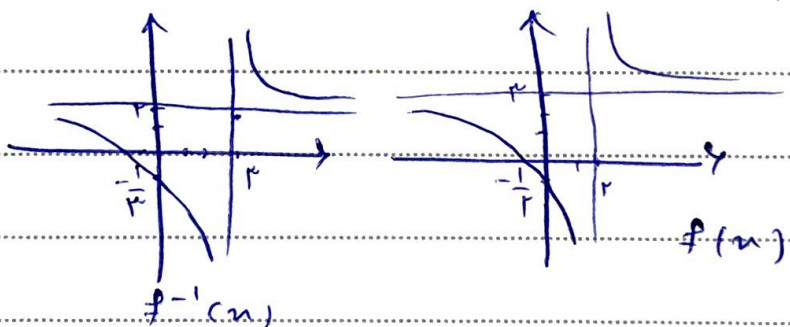
$$y = \frac{2x+1}{x-2} \quad ad \neq bc, \quad 3(-2) \neq 1, \quad -4 \neq 1$$

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

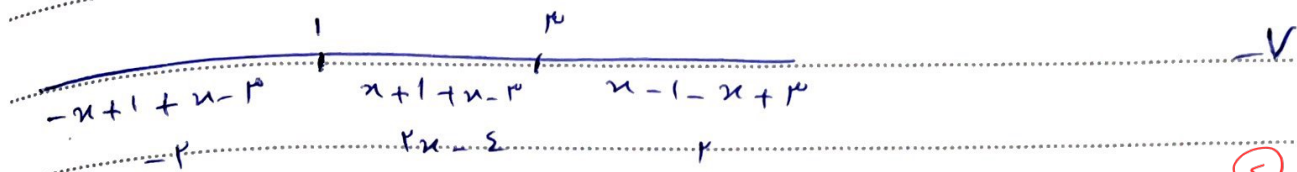
$$x = 2$$

$$\frac{y}{2} = 2$$

$$ad - bc = -4 - 1 = -5$$



شهادت آیت الله قاضی طباطبائی اولین شهید محراب به دست منافقان (۱۳۵۸ هـ ش)



$$\begin{cases} r & x > r \\ rx-2 & 1 \leq x \leq r \\ -r & x < 1 \end{cases} \quad \begin{aligned} y &= rx-r \\ rx &= y+2 \\ x &= \frac{y+2}{r} \rightarrow y = \frac{1}{r}x + r \end{aligned}$$

$$a=1, b=r \rightarrow y=rx-r$$

$$f(x) = \begin{cases} x^r + r & x > 1 \rightarrow R = [0, +\infty) \\ rx-1 & x \leq 1 \rightarrow R = (-\infty, 1] \end{cases}$$

$$y = x^r + r$$

$$y = rx-1$$

$$x^r = y - r$$

$$rx = y + 1$$

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

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

$$y = \sqrt[r]{n-2}$$

$$y = \frac{n+1}{r}$$

$$\begin{cases} \sqrt[r]{n-2} & n \geq 2 \\ \frac{n+1}{r} & n \leq -1 \end{cases}$$

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

$$f^{-1}(x) = \frac{-3y-1}{y-3} \quad y = \frac{-3x-1}{x+3} \rightarrow y = \frac{-4x-2}{x+3} \quad (5)$$

$$f^{-1}(-2) = \frac{-3(-2)-1}{-2+3} = (1) \quad x = \frac{(x^3 + 3x^2 + 3x + 1)}{x+3}$$

$$x^3 + 3x^2 + 3x + 1 = (x+3)(x^2 + 3x + 1)$$

$$x^3 + 3x^2 + 3x + 1 = x^3 + 3x^2 + 3x + 3x + 9x + 3 + x^2 + 3x + 1$$

$$x^3 + 3x^2 + 3x + 1 = x^3 + 4x^2 + 12x + 4$$

$$0 = x^2 + 9x + 3$$

$$a = -4$$

$$b = -2$$

$$d = 2$$

$$f(x) = \frac{x}{x^2+1} \rightarrow x = \frac{y}{y^2+1} \rightarrow xy^2 + x = y$$

$$y^2x - y + x = 0 \rightarrow \Delta = 1 - 4x^2$$

$$y = \frac{1 \pm \sqrt{1-4x^2}}{2x} \quad -\frac{1}{2} + \frac{1}{2} \quad (5)$$

$$f^{-1}(x) = \frac{1 + \sqrt{1-4x^2}}{2x} \quad D_{f^{-1}} = \left[-\frac{1}{2}, \frac{1}{2}\right] - \{0\}$$