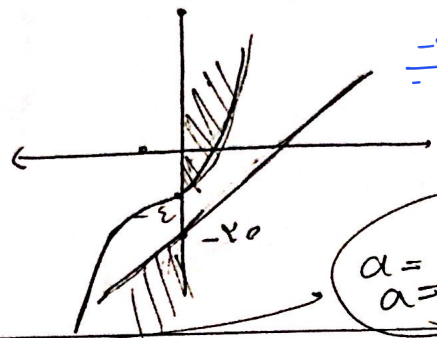


$(a-x)^3 + 9ax^2 + 2x^3$

17, 17, 17

نام و نام خانوادگی (یا آیدین) پاسخنامه تشریحی تکلیف شماره کلاس

$f(x) = \begin{cases} x^3 - 1 & : x > a \\ 12x - 20 & : x \leq a \end{cases}$



$\alpha \in [-r, +d)$ 1, 5

$a^3 - 1 = 12a - 20$
 $\hookrightarrow a^3 - 12a + 19 = 0$

$a = -1$
 $a = 2$

$f(x) = 3x + k \rightarrow 12 + k = 2 \rightarrow k = -10$

5

$f^{-1}(2) = 2 \rightarrow f(2) = 2$

$f(1) = 21 - 10 = 11$

$f(f(x)) = 9x - 10$
 $f(3x - 10) = 9x - 30 - 10$

$f = \{(3, 5), (4, 7), (5, 9), (6, 11)\}$

$f \circ g^{-1} = \{(3, 5), (4, 7)\}$

$g = \{(3, 5), (4, 7), (5, 9), (6, 11)\}$

$g^{-1} \circ f = \{(3, 5), (4, 7), (5, 9), (6, 11)\}$

1

$f \circ f^{-1} = \{(3, 3), (4, 4), (5, 5), (6, 6)\}$

$f^{-1} \circ f = \{(3, 3), (4, 4), (5, 5), (6, 6)\}$

~~f = ...~~

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

$a = 0$ (X)
 $a = 2$ (✓)

$f(x) = \frac{ax}{x-1} \rightarrow \frac{a^2}{a-1} = xa \rightarrow a^2 = xa^2 - xa \rightarrow -a^2 + xa = 0$

$f = \{(2, 4), (3, 8), (4, 16)\}$

$f \circ g^{-1} = \{(2, 4), (3, 8), (4, 16)\}$

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

$\rightarrow \{(2, \frac{1}{2}), (3, \frac{1}{3})\}$

5

$h = \{(1, 2), (2, 4), (3, 8), (4, 16)\}$

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

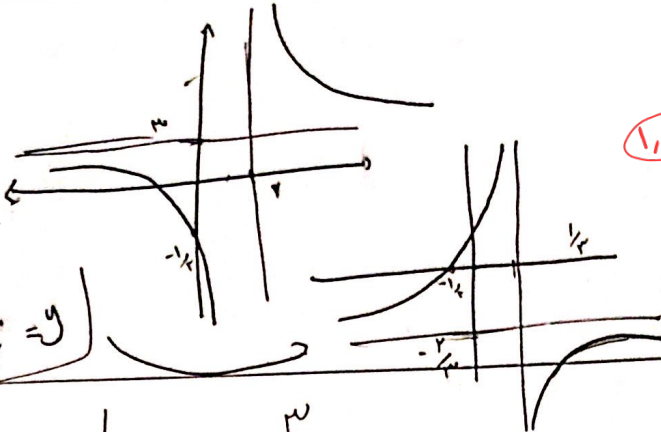
$$x = \frac{y+1}{y-2}$$

$$xy - 2x = y + 1$$

$$\rightarrow -2x - 1 = y(2 - x)$$

$$f^{-1}(y) = \frac{y+1}{y-2}$$

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

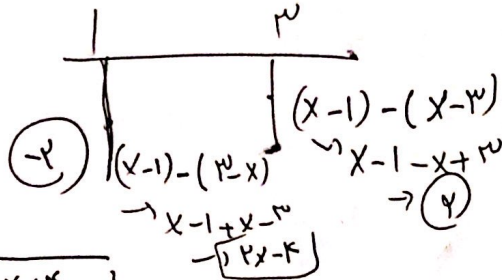


$$f(x) = |x-1| - |x-3|$$

$$L[a, b]$$

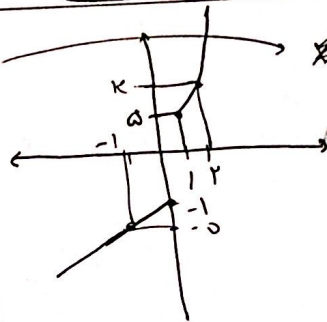
مجموعه

$$\rightarrow y = 2x - 4 \rightarrow x = \frac{y+4}{2} \rightarrow \frac{x+4}{2} = y$$



$$f(x) = \begin{cases} x^2 + 4 & x \geq 1 \\ 4x - 1 & x \leq 0 \end{cases}$$

$$f^{-1}(x) = \begin{cases} \sqrt{x-4} & x \geq 5 \\ \frac{x+1}{4} & x \leq -1 \end{cases}$$



$$x = y^2 + 4$$

$$y = 4x - 1 \rightarrow x = \frac{y+1}{4} \rightarrow \frac{x+1}{4} = y$$

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

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

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

$$f^{-1}(x) = \frac{ax+b}{cx+d} \rightarrow f^{-1} = \frac{-4x-2}{2x+4}$$

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

$$f(x) = \frac{12-2}{-4+4} = \frac{1}{2} = \frac{1}{2}$$

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

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

$$x = \frac{y}{y^2+1} \rightarrow x(y^2+1) = y \rightarrow xy^2 + x = y \rightarrow xy^2 - y + x = 0$$

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

$$x = yx^2 + y$$

$$x = yx^2 + y \rightarrow x - yx^2 = y \rightarrow x(1 - yx) = y \rightarrow \frac{x(1 - yx)}{yx} = y$$

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

1,2

5

5

5

5