

① نویسنه اردیبه - یازدهم سری B دختران

۱۹,۱۸

$$12x - 20 \neq 12 - 4$$

$$12 - 12x$$

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$$12a - 20 \leq a^2 - 12a + 14 \geq 0 \quad (a \geq -1)$$

$$f(u) = 3u + k \quad \& \quad y = 3u + k$$

$$f^{-1}(r) = \leftarrow$$

$$u = \frac{y - k}{3} \quad f^{-1}(u) = \frac{u - k}{3}$$

$$f^{-1}(r) = \frac{r - k}{3} = k$$

$$k = -10$$

$$\text{الف) } f(v) = ?$$

$$f(v) = 3 \times v - 10 = 11$$

$$\text{ب) } f(f(u)) = ?$$

$$f(3u - 10) = 3(3u - 10) - 10 = 9u - 40$$

$$f(u) = \frac{au}{u-1}$$

$$y = \frac{au}{u-1}$$

$$a = \frac{10a -}{10a - a} = \frac{10a}{a} = 10$$

$$a = 10$$

$$yu - y = au$$

$$u(y - a) = y$$

$$u = \frac{y}{y - a} \Rightarrow y = \frac{u}{u - a}$$

$$f = \{(3,5)(4,6)(7,2)(9,4)\}$$

نوسین اریبی
یا ده سر بی

(ک)

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

$$f \circ f^{-1} = \{(5,5)(7,7)(2,2)(4,4)\}$$

$$f^{-1} = \{(5,3)(7,4)(2,6)(4,9)\}$$

(۲)

$$b) f^{-1} \circ f = \{(3,3)(4,4)(7,7)(9,9)\}$$

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

$$g^{-1} = \{(2,3)(4,1)(5,9)\}$$

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

$$h = \{(1,2)(3,4)(4,1)(5,1)\}$$

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

$$f = \{(2,4)(4,1)(4,5)\}$$

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

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

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

تعریف نه

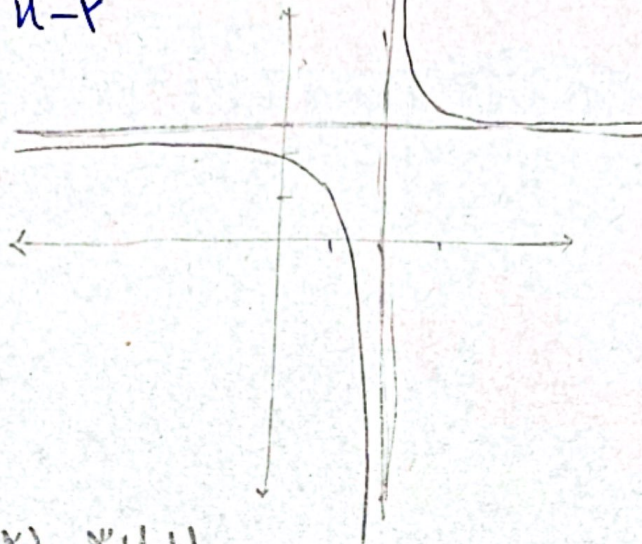
(۵)

(۲)

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

نوشته اریبی
یا، ریشه‌های

تابع معکوس
مکروس



مکروس:

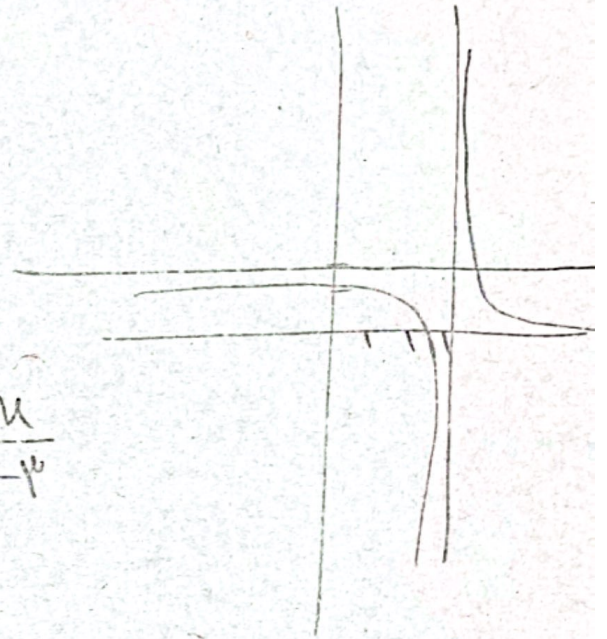
$$y(x-2) = 3x+1$$

$$yx-2y = 3x+1$$

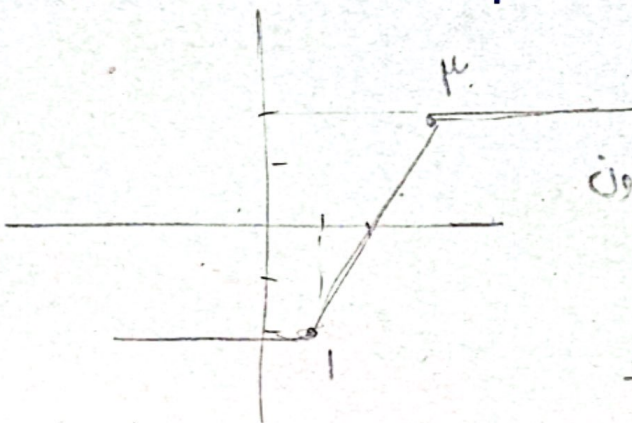
$$yx-3x = 1+2y$$

$$x(y-3) = 1+2y$$

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



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



$$\{(1, -2), (2, 0), (3, 2)\}$$

$$\text{نقطه: } \{(-1, -1), (0, 2), (2, 3)\}$$

$$[1, 3] \text{ باز است}$$

$$f(x) = 2(x-2)$$

$$y = x - 2$$

$$2x = y + 2$$

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

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

$$f(u) = \begin{cases} u^3 + u = y & u \geq 1 \\ u^3 - 1 = y & u < 0 \end{cases}$$

① نوشتن اریبی
یا هم سری بی

$$\{(1,0), (2,1), \dots\}$$

$$\{(-1, -1), (-2, -8), \dots\}$$

یک به یک است

$$y = u^3 + u$$

$$u^3 = y - u$$

$$u = \sqrt[3]{y - u}$$

$$y = \sqrt[3]{y - u} \quad u \geq 0$$

$$y = u^3 - 1$$

$$y + 1 = u^3$$

$$u = \sqrt[3]{y + 1}$$

$$y = \frac{u^3 - 1}{u} \quad u < -1$$

1,5

$$f(u) = \frac{u^3 + u^3 - u^3 - 1 - u - u^3}{u + u}$$

④

$$\Rightarrow y = \frac{-u^3 - 1}{u + u}$$

⑤

$$y(u + u) = -u^3 - 1$$

$$yu + uy = -u^3 - 1$$

$$u(y + u) = -1 - u^3$$

$$u = \frac{-1 - u^3}{y + u}$$

$$y = \frac{-1 - u^3}{u + u}$$

$$f^{-1}(b) = b = \frac{u^3 + 1}{-u - u} \quad (u < 0)$$

$$a = -u \quad b = -u \quad d = u$$

⑤ نوشین ارببی
یازدهم سری B

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

$$a = y$$

$$b = -1$$

$$c = y$$

$$y u^2 + y = u$$

$$y u^2 - u + y = 0$$

$$u = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{1 \pm \sqrt{1 - 4y^2}}{2y}$$

$$f^{-1}(y) = \frac{1 \pm \sqrt{1 - 4y^2}}{2y}$$

$$u \neq 0$$

$$y \neq 0$$