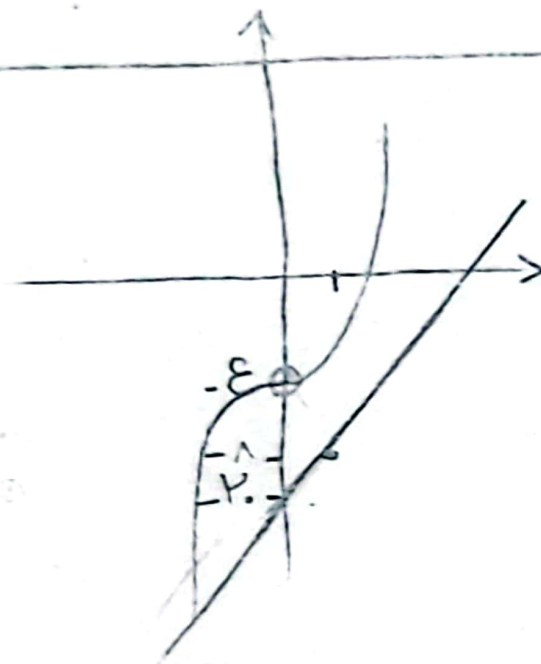


فرانک افشاری
تالیف شماره 11 (17, 15) یادداشت

$$\left. \begin{array}{l} x^w - \varepsilon < x < a \\ 1/x - \nu < x \leq a \end{array} \right\} \rightarrow$$

$$a = \cdot \rightarrow$$



$$a^w - \varepsilon < 1/a - \nu$$

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

1.

9

$$f(x) = wx + k \quad f^{-1}(\nu) = \varepsilon \rightarrow \frac{w(\varepsilon) + k}{-1} = \nu$$

2.

$$f(\nu) = w\nu - 1. = \nu - 1. = 11$$

$$f(f(x)) = w(w x - 1.) - 1. = 9x - \varepsilon$$

9

$$A(p, a)$$

$$f(x) = \frac{ax}{x-1} = y \rightarrow yx - y = ax \rightarrow \quad .3$$

$$\frac{pa}{pa-a} = a \rightarrow \boxed{a=p}$$

$a = 0 \text{ } 000$

$$x(y-a) = y \rightarrow x = \frac{y}{y-a}$$

$$y = \frac{x}{x-a}$$

$$f \circ f^{-1} =$$

$$\omega \rightarrow \mu \rightarrow \omega$$

$$v \rightarrow \varepsilon \rightarrow v$$

$$r \rightarrow v \rightarrow r$$

$$q \rightarrow q \rightarrow q$$

$$f^{-1} = (\omega, \mu), (v, \varepsilon), (r, v), (q, q) \quad .4$$

$$g^{-1} = (r, \mu), (q, \wedge), (\omega, q)$$

$$\{(\omega, \omega), (v, v), (r, r), (q, q)\} \quad 5$$

$$\text{b) } f^{-1} \circ f = \{(\mu, \mu), (\varepsilon, \varepsilon), (\nu, \nu), (q, q)\}$$

$$\mu \rightarrow \omega \rightarrow \mu$$

$$\varepsilon \rightarrow \nu \rightarrow \varepsilon$$

$$\nu \rightarrow \rho \rightarrow \nu$$

$$q \rightarrow \phi \rightarrow q$$

$$\text{c) } f \circ g^{-1} = \{(\rho, \omega), (\omega, \phi)\}$$

$$\rho \rightarrow \mu \rightarrow \omega$$

$$\phi \rightarrow \wedge \rightarrow \times$$

$$\omega \rightarrow q \rightarrow \phi$$

$$\text{d) } g^{-1} \circ f = \{(\mu, q), (\nu, \mu), (q, \wedge)\}$$

$$\begin{array}{l} \mu \rightarrow \omega \rightarrow q \\ \varepsilon \rightarrow \nu \rightarrow \times \\ \nu \rightarrow \rho \rightarrow \mu \\ q \rightarrow \phi \rightarrow \wedge \end{array}$$

$$f \circ g^{-1} = \{(1, \varepsilon), (\omega, \cdot), (10, \wedge)\}$$

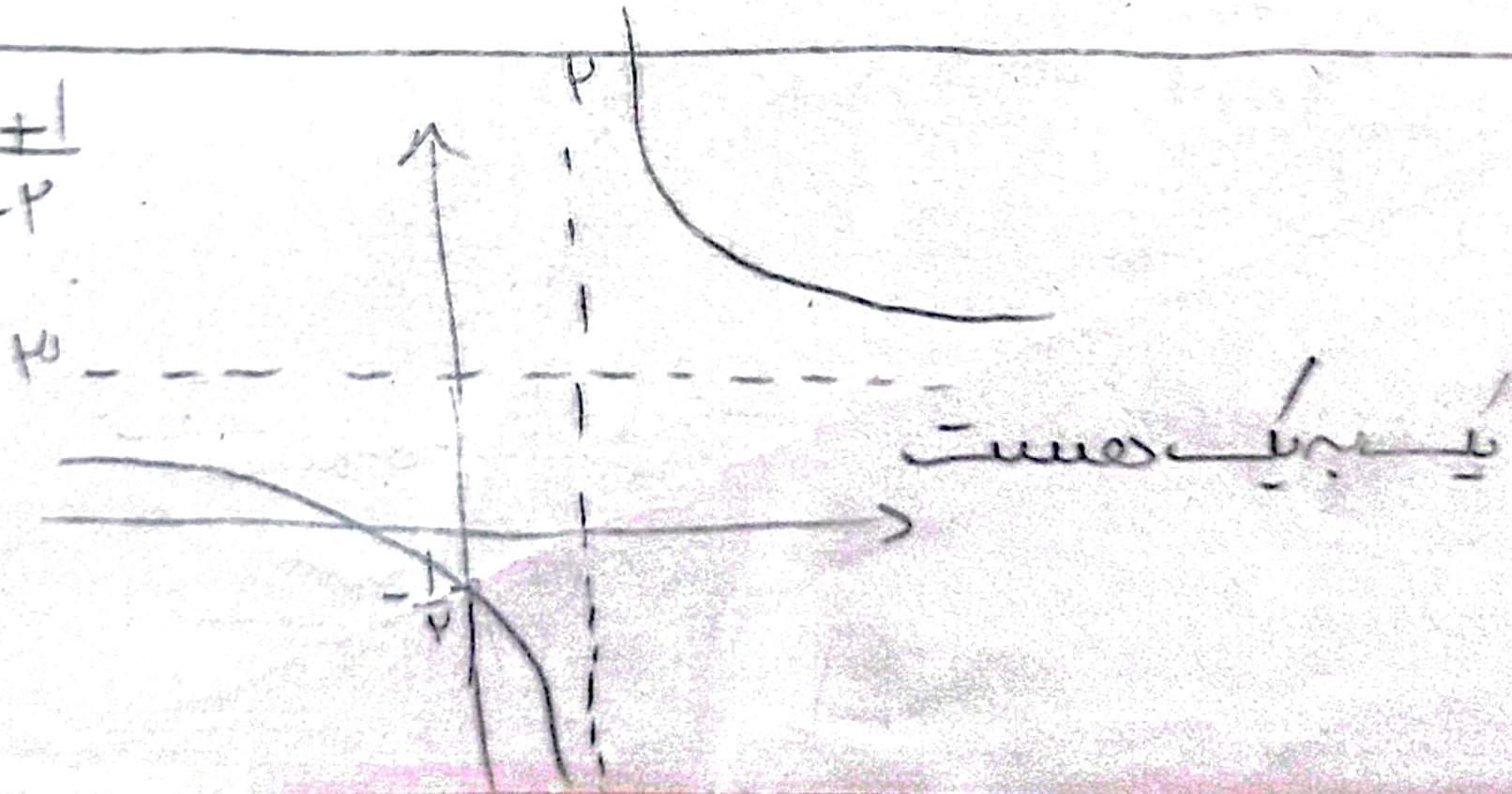
.5

$$\begin{aligned} 1 &\rightarrow \nu \rightarrow \varepsilon \\ 10 &\rightarrow \varepsilon \rightarrow \wedge \\ \omega &\rightarrow \cdot \rightarrow \cdot \end{aligned}$$

$$\{(1, \textcircled{\frac{1}{\nu}}), (10, \textcircled{\frac{1}{\nu}}), (\omega, \textcircled{\frac{1}{\cdot}})\}$$

5

$$y = \frac{10x+1}{x-1}$$

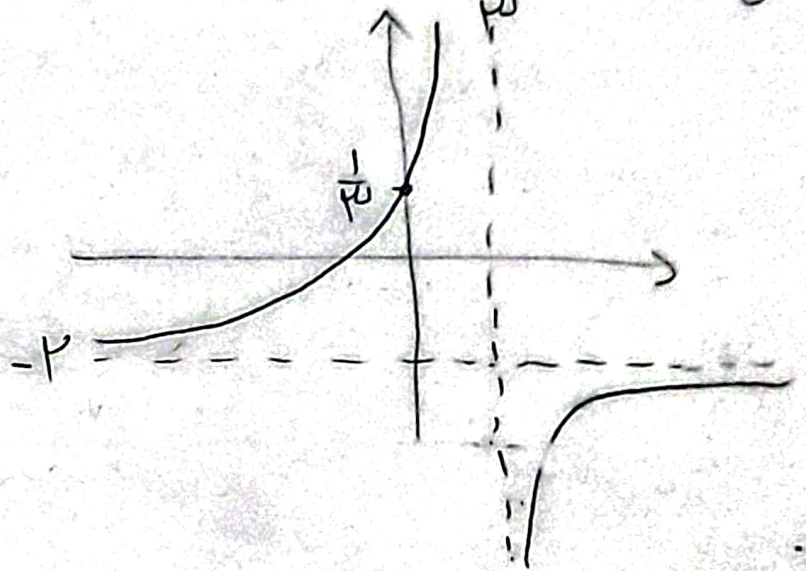


.6

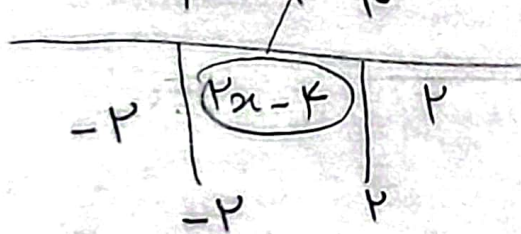
5

6. ب) $yx - py = \omega x + 1 - 2 \quad \omega x - yx = 1 + py \rightarrow x(\omega - y) = 1 + py \rightarrow$

$$x = \frac{1+py}{\omega-y} \rightarrow y = \frac{1+px}{\omega-x}$$



یک به یک وارون پذیر



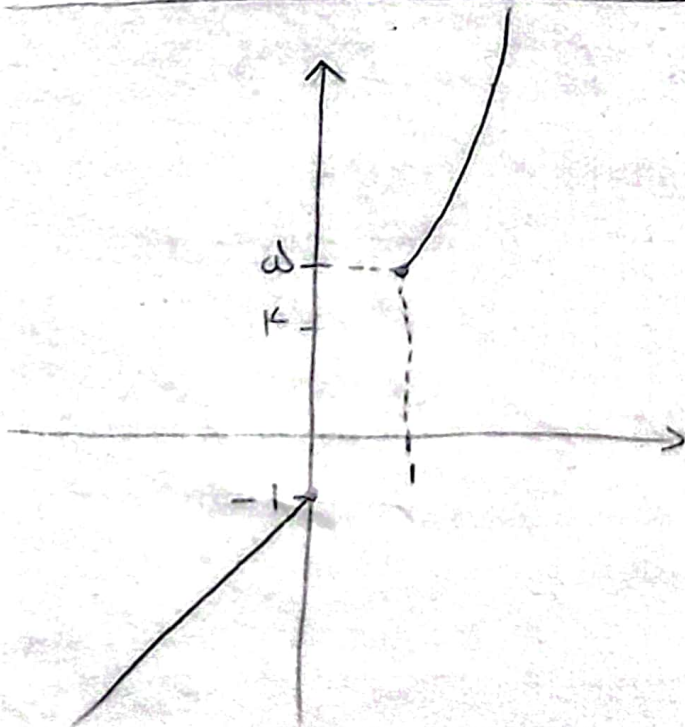
$$-x + 1 - \underbrace{(\omega - x)}_{x - \omega} = -p$$

$$x - 1 - \underbrace{(\omega - x)}_{x - \omega} = px - k$$

7

$[1, \omega] \rightarrow px - k = y \xrightarrow{\text{عکس}} y = \frac{x+k}{p}$

5



8. وارون پذیر هست

(1, 1/omega)

$$-\frac{\varepsilon}{r} + \sqrt{\frac{\omega}{x-r}}$$

$$x \geq \omega$$

$$+ 1 - \frac{x}{\varepsilon}$$

$$x \leq -1$$

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

$$x^p(x+1) = x^p + 1 \quad 9$$

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

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

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

$d = 1$
 $a = -1$
 $b = -1$

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

$$yx^p + y = x \rightarrow \Delta = b^2 - 4ac = 1 - 4y^p \rightarrow x = \frac{1 \pm \sqrt{1-4y^p}}{2y^p}$$

10

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