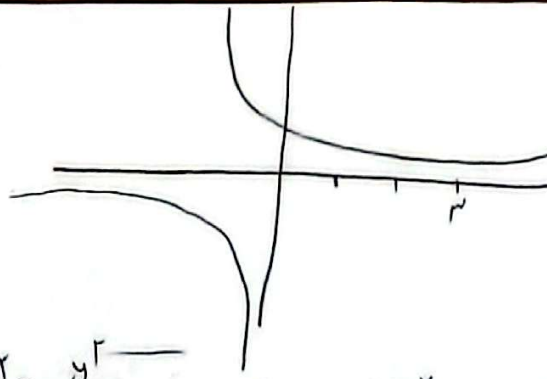


$$y = \frac{x}{\sqrt{x^2 - 1}}$$



$\sim \frac{1}{x}$

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

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

$$y^2 = \frac{a + rx^2}{x^2 - 1} \rightarrow y = \frac{x\sqrt{r}}{\sqrt{x^2 - 1}}$$

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

$$g(x) = \sqrt{x} - 1 - \frac{r}{r} f\left(\frac{r}{\omega}\right) + g^{-1}\left(\frac{r}{\omega}\right) \frac{r}{r\omega}$$

$$-\frac{r}{\omega} = \sqrt{x} - 1 \quad \sqrt{x} = \frac{r}{\omega} \quad \boxed{x = \frac{r}{r\omega}}$$

$$-\frac{r}{\omega} = \frac{x}{1+|x|}$$

$$\omega x = -r - r|x|$$

$$\omega x + r|x| = -r \rightarrow x = -\frac{r}{r}$$

$$-\frac{r}{r} + \frac{r}{r\omega} = \frac{-\omega + r}{\omega} = \frac{-r}{\omega}$$

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

$$g(x) = f(x) + \sqrt{f(x)}$$

$$\boxed{x^2 + 1 = +}$$

$$x = \sqrt{y-1}$$

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

$$x^2 + 1 + \sqrt{x^2 + 1} = 1r$$

$$x^2 = y - 1$$

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

المعادلات

$$a) f = \{(r, r)(n, n)(r, n^r - n)(m, r)(-1, r)\}$$

$$m = r$$

$$n^r - n = r$$

$$n^r - n - r = 0 \quad \begin{matrix} -1 \times \\ r \checkmark \end{matrix}$$

$$n = r$$

$$b) f = \{(-1, 1)(1, r), (r, r)(a, m^r - 1)(a, r^r - n)(r, a, r)\}$$

$$m = r$$

$$a = -1$$

$$n = r$$

$$f(x) = \begin{cases} r^n - 1; & x \geq 1 \\ x + a; & x < 1 \end{cases}$$

$$a < 1$$

$$1 + a < r$$



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

$$I: a - 1 < r$$

$$a < 1$$

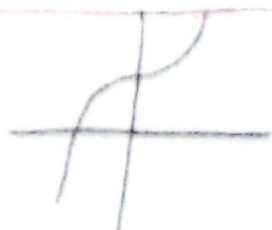
$$II: a > 0 \quad I \cap II \rightarrow 0 < a < 1$$



$$a) y = x^r + r$$

$$x_1^r + r = x_2^r + r$$

$$x_1 = x_2$$

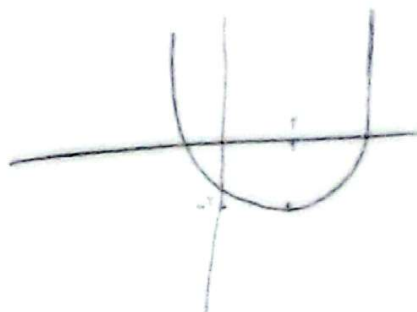


$$x = y^r + 1$$

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

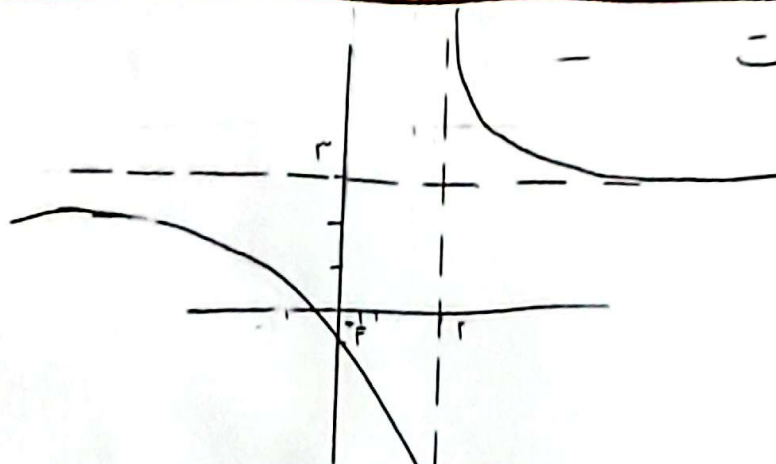
$$b) y = x^r - rx + r$$

$$y = x^r - rx + r$$



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

یک به یک است



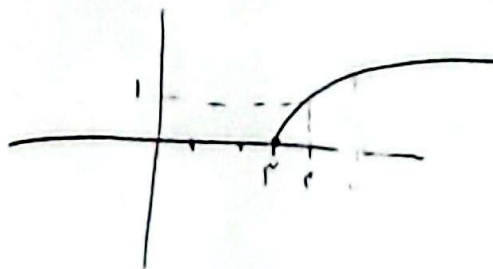
$$x = \frac{2y+1}{y-2} \rightarrow y = -\frac{-2x-1}{x-2} \rightarrow y = \frac{2x+1}{x-2} = f^{-1}$$

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

یک به یک نیست

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

یک به یک است



$$y = x^2 - 4x + 2 \quad x \in [2, +\infty)$$

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

$$\overline{x-1} = y-2 \leftarrow x+1 = (y-2)^2$$

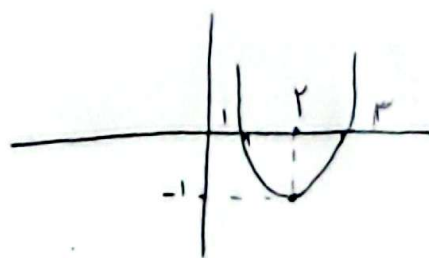
$$\rightarrow y = 2 + \sqrt{x+1}$$

$$y = x + \sqrt{x} \quad y = k^2 + k \quad y(y+1) = k$$

$$\sqrt{x} = k \quad k = y^2 + y \quad y+1 = \frac{k}{y}$$

$$y = \frac{k}{y} + 1 \rightarrow y = \frac{k}{k^2+k} + 1 \rightarrow y = \frac{1}{k+1} + 1$$

$$\overline{x-1} \leftarrow \frac{(\sqrt{x}+1)(\sqrt{x}-1)}{\sqrt{x}+1 \cdot \sqrt{x}-1} \leftarrow \frac{1+\sqrt{x}+1}{\sqrt{x}+1} \leftarrow y = \frac{1}{\sqrt{x}+1} + 1$$



یک به یک است

-V