

$$الف) f = \{(x, y)(n, a)(x, n^2 - n)(m, y)(-1, x)\} \quad 1$$

$$n^2 - n = y \quad n^2 - n - y = 0$$

$$(n - y)(n + 1) = 0$$

$$\boxed{n = y} \quad \text{و } -1 \text{ ع}$$

$$\boxed{m = y}$$

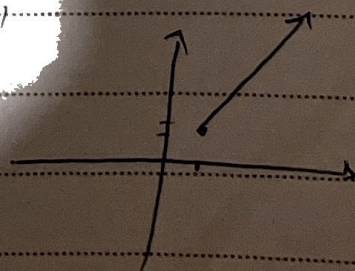
$$ب) f = \{(-1, 1)(1, y)(y, y)(a, m - 1)(a + y, n)(m, y)\}$$

$$m = y \rightarrow m - 1 \rightarrow y - 1 = 1 \quad (a, 1) \rightarrow a = 1$$

$$a = 1 \rightarrow a + y = 1 + y = 1 \quad (1, n) \rightarrow \boxed{n = y}$$

$$f(x) = \begin{cases} yx - 1, & x \geq 1 \\ x + a, & x < 1 \end{cases} \quad \begin{matrix} x = 1 \rightarrow y - 1 < y \\ 1 + a \leq y \\ a \leq 1 \\ a \leq 1 \end{matrix} \quad 2$$

$$(-\infty, 1 + a) \rightarrow 1 + a \leq y \rightarrow a \leq 1$$



٧ ربيع الاول

TUE 4 OCT

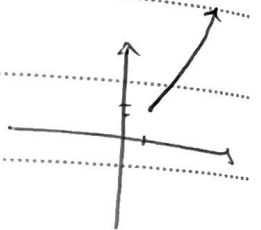
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سنة ١٤٤١

$$f(x) = \begin{cases} x^{p-1}, & x \geq 1 \\ ax + a - 1, & x < 1 \end{cases}$$

٥

$$\begin{cases} a \geq 1 \\ a - 1 < p - 1 \rightarrow a < p \end{cases} \Rightarrow 0 < a < p$$



الف) $y = x^p + p$

$$y_1 = y_2 \rightarrow x_1 = x_2$$

$$x_1^p + p = x_2^p + p$$

$$x_1 = x_2 \rightarrow x^p = y - p$$

$$x = \sqrt[p]{y - p} \rightarrow y = \sqrt[p]{x + p}$$

$$f^{-1}(x) = \sqrt[p]{x + p}$$

ب) $y = x^p - \varepsilon x + p$

$$y_1 = y_2 \rightarrow x_1 = x_2$$

$$x_1^p - \varepsilon x_1 + p = x_2^p - \varepsilon x_2 + p \Rightarrow x_1^p - \varepsilon x_1 = x_2^p - \varepsilon x_2$$

مهر

۱۳

چهارشنبه

۸ ربیع الاول

WED 5 OCT

الف) $y = \frac{x+1}{x-2}$

ب) $y = \frac{2+2x}{x+2}$

۵)

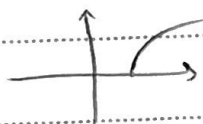
$yx - 2y = x + 1 \rightarrow x(y-2) = y+1$

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

$\frac{ax+b}{cx+d} \rightarrow ad-bc$
($x \neq -\frac{d}{c}$)

$f^{-1}(x) = \frac{2x+1}{x-2}$ ۳

الف) $y = \sqrt{x-3}$



$y = \sqrt{x-3} \rightarrow x = \sqrt{y+3}$

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

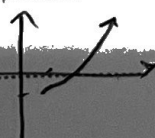
$y = (x-2)^2 - 1 \rightarrow x-2 = \pm \sqrt{y+1}$

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

۵)

$x^2 = y-3 \rightarrow y = x^2 + 3 \xrightarrow{x \geq 2} f^{-1}(x) = x^2 + 3, x \geq 2$

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



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

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

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

۵)

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

$a=1, b=\frac{1}{x}, c=-\frac{1}{x}$

شهادت حضرت امام حسن عسکری علیه السلام (۲۶۰ هـ) و آغاز امامت حضرت ولی عصر (عج) (تعطیل) - هجرت حضرت امام خمینی (رحمت الله علیه) از عراق به پاریس (۱۳۵۷ هـ ش) - روز نیروی انتظامی

$$f(x_1) = f(x_2) \rightarrow \frac{x_1}{\sqrt{x_1^2 - 2}} = \frac{x_2}{\sqrt{x_2^2 - 2}} \rightarrow \frac{x_1^2}{x_1^2 - 2} = \frac{x_2^2}{x_2^2 - 2} \quad A$$

$$x_1^2 x_2^2 - 2x_1^2 = x_2^2 x_1^2 - 2x_2^2 \rightarrow x_1^2 = x_2^2 \rightarrow x_1 = \pm x_2$$

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

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

$$g = -\frac{r}{\delta} \rightarrow y = -\frac{r}{\delta}$$

$$\sqrt{x-1} = -\frac{r}{\delta} \rightarrow \sqrt{x} = \frac{r}{\delta} \rightarrow x = \frac{r^2}{\delta^2} \quad -\frac{r}{\delta} = f, \quad -\frac{r}{\delta} = f(n)$$

$$\frac{x}{1+|x|} = -\frac{r}{\delta} \rightarrow x = -\frac{r}{1+|x|} \rightarrow \partial x = -\frac{r}{1+|x|} \rightarrow x = -\frac{r}{1+|x|} \rightarrow x = -\frac{r}{1+|x|}$$

$$-\frac{r}{x} + \frac{r}{\delta} = -\frac{r}{\sqrt{\delta}}$$

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

$$g(n) = f(n) + \sqrt{f(n)} = 1 \quad f(n) = n^2 + 1$$

$$f(n) = n \quad x^2 + 1 = n \rightarrow x^2 = n-1 \quad x = \sqrt{n-1}$$

$$g(n) = 12$$