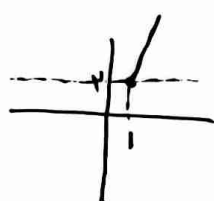


الف) $n^2 - n = 2$ $n \in \mathbb{Z}^{-1}$ $\rightarrow m=3$ $n=2$

ب) $m=2 \rightarrow n-1=1$ $a+2=1$
 $\rightarrow a=-1$ $\rightarrow n=2$



$$f(n) = \begin{cases} 2n-1 & ; n \geq 1 \\ n+a & ; n < 1 \end{cases}$$

$$a \leq (f(1)-1)$$

$$\rightarrow a \leq 2$$

✓ + سبب



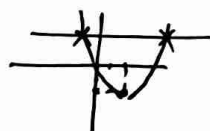
$$f(n) = \begin{cases} 2n-1 & ; n \geq 1 \\ an+a-1 & ; n \leq 0 \end{cases}$$

$$a > 0 \text{ ✓}$$

$$a-1 < 2 \quad a < 3 \quad \rightarrow \boxed{0 < a < 3}$$

الف) $y = x^3 + 2$ $y_1 = y_2 \rightarrow x_1^3 + 2 = x_2^3 + 2$ $x_1 = x_2$ ✓
 $x = y^3 + 2 \rightarrow y = \sqrt[3]{x-2}$

ب) $x^2 - 5x + 2$
 $(2, -2) \quad \frac{b}{2a} = 2$



(خط افقی دو بار قطع) غیر یک به یک

الف) $y = \frac{x+1}{x-2}$



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

ب) $y = \frac{x+2}{x+2} = 1$

$\rightarrow y=1$ یک به یک نیست

الف) $y = \sqrt{x-r}$ $x \in [r, +\infty) \rightarrow y, y_r \Rightarrow \sqrt{x-r} = \sqrt{y_r-r}$
 $x = \sqrt{y-r}$ $\rightarrow x^r = y-r$ $y = x^r + r$ $\rightarrow x_1^r = x_2^r = y-r$ $x_1 = x_2$ ✓

$\rightarrow x = y^r - y + r + 1 - 1 \Rightarrow x = (y-r)^r - 1 \rightarrow y = \sqrt[r]{x+1} + r$
 $\therefore y = x^r - \epsilon x + r$; $x \in [r, +\infty)$ $\frac{-b}{r\alpha} = r$ $(r, -1)$ ✓

$f(x) = x + \sqrt{x}$ $y = u^r + u$
 $\hookrightarrow u^r + u - y = 0 \rightarrow \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm \sqrt{1+\epsilon y}}{r}$
 $x = \left(\frac{-1 + \sqrt{1+\epsilon y}}{r} \right)^r$
 $\Rightarrow x = \frac{1}{r} + y - \frac{1}{r} \sqrt{1+\epsilon y}$
 $\Rightarrow f^{-1}(x) = x + \frac{1}{r} - \frac{1}{r} \sqrt{1+\epsilon x} = ax + b - \sqrt{x-c}$ $\sim 1x + \frac{1}{r} - \sqrt{x - (-\frac{1}{\epsilon})}$
 $a=1$
 $b=\frac{1}{r}$
 $c=-\frac{1}{\epsilon}$
 $\left. \begin{matrix} a+2b+\epsilon c \\ \end{matrix} \right\} = 1$

$y = \frac{x}{\sqrt{x^r-r}}$ $D_f = (-\infty, -\sqrt{r}) \cup (\sqrt{r}, +\infty) \rightarrow x \neq 0$ $y, y_r \left(\frac{x_1}{\sqrt{x_1^r-r}} = \frac{x_2}{\sqrt{x_2^r-r}} \right)^r$
 $\frac{x_1^r}{x_1^r-r} = \frac{x_2^r}{x_2^r-r} \Rightarrow x_1^r(x_2^r-r) = x_2^r(x_1^r-r)$
 $x_1^r x_2^r - r x_1^r = x_1^r x_2^r - r x_2^r$
 $-r x_1^r = -r x_2^r$
 $x_1^r = x_2^r$
 $x_1 = \pm x_2$

$g^{-1}(-\frac{r}{\delta}) = a$ $\frac{r}{\delta}$ $\neq f^{-1}(-\frac{r}{\delta}) = b$
 $\hookrightarrow g(a) = -\frac{r}{\delta} \Rightarrow \sqrt{a} - 1 = -\frac{r}{\delta}$ $f^{-1}(b) = -\frac{r}{\delta}$
 $a = \frac{q}{r\delta}$ $\frac{b}{1+|b|} = -\frac{r}{\delta} \Rightarrow \frac{b}{1-b} = -\frac{r}{\delta}$ $b = -\frac{r}{r}$
 $a+b = -\frac{r}{r} + \frac{q}{r\delta} = \frac{-r\delta + q}{r\delta}$ $b < -\frac{r}{\delta}$ $\leftarrow$ جيب

$g^{-1}(1r) = a$
 $g(a) = 1r = f(a) + \sqrt{f(a)}$
 $\sqrt{f(a)} = t$
 $t^r + t - 1r = 0$ $t = 1+r$ ✓
 $\sqrt{f(a)} = r$ $f(a) = 9$ $\Rightarrow f^{-1}(9) = a \Rightarrow a = 2$
 $g^{-1}(1r) = a$ $\Rightarrow g^{-1}(1r) = 2$ ✓