

تلفیظ و احوال

بازدم رفتن

بیت سینه

①

$$\rightarrow \{ (r, 2) (n, 2) (r, n^2 - n) (m, r) (-1, r) \}$$

$$n^2 - n = r \rightarrow n^2 - n - r = 0 \quad (n-2)(n+1) = 0$$

$\begin{matrix} r & \rightarrow & -1 \end{matrix}$

$$\begin{matrix} n=2 \\ m=3 \end{matrix}$$

$$\rightarrow \{ (-1, 1) (1, 2) (2, 3) (a, m-1) (a+2, n) (m, r) \}$$

$$m=2 \rightarrow m-1=1 \rightarrow r=1 \rightarrow (a, 1) \rightarrow a=1$$

$$a=1 \rightarrow -1+2=1$$

$$(1, n) \rightarrow \boxed{m=2}$$

$$f(a) = \begin{cases} r a - 1 & a > 1 \\ a + a & a < 1 \end{cases}$$

②

$$a=1 \rightarrow a+a < r$$

$$1+a \leq r$$

$$a \leq 1$$

$$\begin{matrix} 1+a=r \\ a=1 \end{matrix}$$

$$f(a) = \begin{cases} r a - 1 & a > 1 \\ a + a - 1 & a \leq 1 \end{cases}$$

③

$$\begin{cases} a > 1 \\ a-1 < r \end{cases} \rightarrow a < r+1 \rightarrow -1 < a < r+1$$

$$\text{اند) } g = a^r + r \rightarrow f^{-1}(a) = \sqrt[r]{a-r}$$

$$g = y_r \rightarrow a_r = m_r$$

$$a_r^r + r = m_r^r + r$$

$$a_r = m_r \rightarrow a^r = y_r - r$$

$$a = \sqrt[r]{y-r} \rightarrow g = \sqrt[r]{a-r}$$

$$\rightarrow g = a^r - (m+r)$$

④

$$g = y_r \rightarrow a_r = m_r$$

$$a_r^r - (m_r + r) = a_r^r - (a_r + r)$$

$$m_r = + m_r \quad \text{بعضی چیزها}$$

$$و) y = \frac{c+1}{a-r}$$

$$ya - ry = c+1$$

$$a(y-r) = ry+1$$

$$a = \frac{ry+1}{y-r} \rightarrow y = \frac{ry+1}{a-r}$$

$$f(a)^{-1} = \frac{ry+1}{a-r}$$

$$\rightarrow y = \frac{c+ry}{a+r} = \textcircled{r} \quad (d)$$

$$\frac{a+b}{c+d} \rightarrow ad=bc$$

مربعين في مربعين

$$و) y = \sqrt{a-r}$$

$$a = \sqrt{y-r}$$

$$a^r = y-r \rightarrow y = a^r + r$$

$$f(a)^{-1} = a^r + r$$

$$\rightarrow y = a^r - (a+r) \quad a \in [r, +\infty) \quad (g)$$

$$y = (a-r)^r - 1 \rightarrow a-r = \pm \sqrt[r]{y+1}$$

$$a = \pm \sqrt[r]{y+1} + r$$

$$f(a)^{-1} = r + \sqrt[r]{y+1}$$

$$y = a + \sqrt{a} \rightarrow (\sqrt{a} + \frac{1}{r})^r - 1$$

$$a + \frac{1}{r} = (\sqrt{a} + \frac{1}{r})^r \rightarrow a = (\sqrt{a} + \frac{1}{r})^r - \frac{1}{r}$$

$$\sqrt{a} = \sqrt{a + \frac{1}{r} - \frac{1}{r}} \xrightarrow{\text{تربيع}} y = a + \frac{1}{r} - \frac{1}{r} - \sqrt{a + \frac{1}{r}}$$

$$\rightarrow f(a)^{-1} = a + \frac{1}{r} - \sqrt{a + \frac{1}{r}}$$

$$a = 1$$

$$b = \frac{1}{r}$$

$$c = -\frac{1}{r}$$

$$f(a_1) = f(a_r)$$

$$\frac{a_1}{\sqrt{a_1^r - r}} = \frac{a_r}{\sqrt{a_r^r - r}}$$

$$\xrightarrow{\text{تربيع}} \frac{a_1^r}{a_1^r - r} = \frac{a_r^r}{a_r^r - r} \quad (h)$$

$$a_1^r a_r^r - r a_1^r = a_r^r a_1^r - r a_r^r \Rightarrow a_1^r = a_r^r \rightarrow a_1 = \pm a_r$$

$$y = \frac{a}{\sqrt{a^r - r}} \Rightarrow a = \frac{y}{\sqrt{y^r - r}} \rightarrow a^r = \frac{y^r}{y^r - r}$$

$$a^r y^r - r a^r = y^r \rightarrow y^r a^r - y^r = r a^r \rightarrow y^r = \frac{r a^r}{a^r - 1} \rightarrow y = \pm \sqrt[r]{\frac{r a^r}{a^r - 1}}$$

$$y = \frac{\sqrt[r]{r a}}{\sqrt{a^r - 1}}$$

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

$$g(x) = \sqrt{x-1} \rightarrow g = \frac{x}{1+|x|}$$

$$\sqrt{x-1} = \frac{x}{1+|x|} \rightarrow x = \frac{x}{1+|x|} \rightarrow x = \frac{1}{1+|x|}$$

$$g(a) = \sqrt{a-1}$$

$$\frac{-1}{a} = f(a)^{-1}$$

$$f\left(-\frac{1}{a}\right) + g\left(-\frac{1}{a}\right) = 9$$

$$\frac{-1}{a} + \frac{1}{a} = \frac{-1+1}{a} = 0$$

$$\frac{a}{1+|a|} = \frac{-1}{a} \rightarrow a^2 = -1 - |a|$$

$$a^2 = -1 + |a|$$

$$a = \frac{-1}{a} \rightarrow a^2 = -1$$

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

$$g = \sqrt{x-1} \rightarrow a = \sqrt{g-1} \rightarrow a^2 = g-1$$

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

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

$$g(1) = 9$$

$$f(a) = 9 \rightarrow a^2 + 1 = 9 \rightarrow a^2 = 8 \rightarrow a = \sqrt{8}$$

$$a = 2$$