

$$\sin \frac{\alpha}{r} \rightarrow r \left(\frac{\sqrt{r}}{r} \right) \left(\frac{-r + \sqrt{r}}{r} \right) = \frac{-r + \sqrt{r}}{r} \quad f(n) = r n^r - r n \quad (6)$$

$$\cos 2\alpha \rightarrow r(1)(1-r) = -r$$

$$\frac{-r + \sqrt{r}}{r} - \frac{r}{r} \rightarrow \frac{-1 + \sqrt{r}}{r}$$

$$f(a) \rightarrow \frac{a+1}{a-1} \quad (v)$$

$$f(f(a)) = \frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1} \quad Df = \mathbb{R} - \{1\}$$

$$a \neq 1$$

(1)

$$g(a) \rightarrow \sqrt{a^r - 1}$$

$$f(g(a)) \rightarrow \sqrt{(a^r - 1)^r} - r \sqrt{a^r - 1} + r s_0 \rightarrow a^r - 1 - r \sqrt{a^r - 1} + r s_0$$

$$\sqrt{a^r - 1} = t \rightarrow t^r - r t + r s_0 \rightarrow (t - r)^r s_0$$

$$(\sqrt{a^r - 1} - r)^r \Rightarrow a = \sqrt[r]{r}$$

$$\left. \begin{array}{l} n + r \leq r \quad n \leq 1 \\ f(r) \leq 1 - r + r \leq r \\ n + r \leq -r \quad n \leq -4 \\ f(-r) \leq r^4 + r_0 + r \leq r^4 \end{array} \right\} \quad \forall r \times r \leq 1 \times r$$

(9)

$$r \cos^2 m + \Delta \cos m = r/\Delta$$

(10)

$$\cos m (r \cos m + \Delta) = r/\Delta$$

$$\downarrow t \quad \hookrightarrow \frac{r}{r}$$

$$t(r t + \Delta) = \frac{r}{r} \quad r t^2 + \Delta t - \frac{r}{r} = 0 \quad t = \frac{1}{r} \rightarrow \cos m = \frac{1}{r} \rightarrow \boxed{m = 40^\circ}$$

$$f(r/\Delta) = \tan^r 40^\circ \quad \tan^r 40^\circ \rightarrow \textcircled{r}$$

(1)

$$f(x) \Rightarrow \sqrt{\frac{x-1}{x} - \frac{x}{x-1}} \rightarrow \sqrt{\frac{(x-1)^2 - x^2}{x(x-1)}} \Rightarrow \sqrt{\frac{-2x+1}{x^2-1}}$$

$$Df \Rightarrow x(x-1) \Rightarrow \underline{0, 1} \neq x$$

$$(x-1)^2 - x^2 \geq 0 \quad -2x+1 \geq 0$$

$$x^2 - 2x + 1 - x^2 \geq 0 \quad -2x+1 \geq 0$$

$$\begin{matrix} 0 & \frac{1}{2} & 1 \\ + & | - & + \\ 0 & & 0 \end{matrix} \quad (-\infty, 0) \cup [\frac{1}{2}, 1) \subset Df$$

$$\Rightarrow \frac{\frac{x-2x-2}{(x+1)x}}{\frac{3(x+2)+(x-1)}{(x-1)(x+2)}} \rightarrow \begin{cases} x+1 \neq 0 & x \neq -1 \\ x \neq 0 \\ x+2 \neq 0 & x \neq -2 \\ x \neq 1 \end{cases}$$

$$Df \supset \mathbb{R} - \{0, -1, -2, 1\}$$

الف) $(\frac{1}{x})^n - 9 \geq 0 \quad (\frac{1}{x})^n \geq 9 \rightarrow (\frac{1}{x})^{-2} \rightarrow x \geq -2$

$$3x - 4 \geq 0 \quad 3x \geq 4 \rightarrow x \geq \frac{4}{3}$$

$$3x \geq 4 \rightarrow x \geq \frac{4}{3} \quad \frac{0}{x} \geq x \quad Df \subset [-2, \frac{4}{3}]$$

ب) $\frac{x}{x-1} \geq 0 \quad x \geq 1 \quad Df \subset [1, +\infty)$

خروج غیر قابل قبول است و زیر را قبول هم در صورتی که $x \neq 0$

$$x^2 - x - 2 > 0 \quad \frac{-1 \pm 2}{+1 \pm 1} \quad (-\infty, -1) \cup (2, +\infty) \subset Df$$

بازار b و -2 می شود $\rightarrow 3 - 2x - 4 \leq 0 \quad \boxed{x \leq -\frac{1}{2}}$

$$-x^2 - \frac{1}{x}x + 3 \geq 0 \rightarrow \frac{1}{x} \pm \sqrt{\frac{1}{x^2} - 4(3)(-1)} \rightarrow \begin{cases} x_1 = \frac{1}{x} + \frac{\sqrt{1+12x}}{-2} \leq -2 \\ x_2 = \frac{1}{x} - \frac{\sqrt{1+12x}}{-2} \leq \frac{1}{x} \Rightarrow b \end{cases}$$

$$f(x) - x \geq 0 \quad \begin{cases} 3x(-x) - 2 & x \geq 1 \\ 2x(-x) + 3 & -2 \leq x < 1 \end{cases} \rightarrow Dg = [-2, +\infty)$$