

$$x = a \rightarrow a^r + 2a = a \times a - r \Rightarrow a^r + 2a = a^2 - r \Rightarrow a^r + 2a - a^2 = -r \Rightarrow$$

$$2a = -r \Rightarrow a = -\frac{r}{2}$$

$$f(x) = \begin{cases} x^r + 2x & ; x > a \\ ax - r & ; x \leq a \end{cases} \Rightarrow \text{دو ضابطه باید در } x=a \text{ یک مقدار برابر تولید کنند}$$

$$g(r) = r \Rightarrow r(r) + b = r \Rightarrow b = -1$$

$$f(r) = r \Rightarrow \frac{r^r + a}{r(r) - b} = r \Rightarrow a = 11$$

$$f(1) = \frac{1^r + 11}{r(1) + 1} = \frac{1r}{r} = 1$$

$$rx^r + ax + b = 0 \rightarrow x_1 = -1, x_2 = r \quad \alpha + \beta = -\frac{a}{r}, \alpha\beta = \frac{b}{r}$$

$$-1 + r = -\frac{a}{r}, (-1)(r) = \frac{b}{r} \Rightarrow a = -r, b = -r$$

$$f(x) = \frac{rx + 1}{rx^r - rx - r} \quad f(1) = \frac{f(1) + 1}{r(1)^r - r(1) - r} = \frac{a}{r - r - r} = -\frac{a}{1r}$$

$$f(x) = \frac{x^r - \sqrt{r}}{-rx^r + ax + b}$$

$$-rx^r + ax + b = 0 \rightarrow x = -1$$

$$-rx^r + ax + b = k(x+1)^r$$

$$\Rightarrow -rx^r + ax + b = kx^r + rkx + k \Rightarrow \begin{cases} k = -r \\ a = rk \\ b = k \end{cases}$$

$$k = -r \Rightarrow a = r(-r) = -r^2$$

$$b = -r$$

$$a + b = -r^2 + (-r) = -r^2 - r$$

$$f(x) = \frac{rx}{(x-1)(x^r + mx + 1)}$$

$$\Delta < 0 \Rightarrow m^r - r < 0 \Rightarrow (m-r)(m+r) < 0$$

$$\frac{-r}{+ \phi} < \frac{+r}{- \phi +}$$

$$-r < m < +r$$

$$f(x) = \sqrt{x - \frac{1}{x^r}} \quad \textcircled{1} \quad x - \frac{1}{x^r} \geq 0 \Rightarrow x^{r+1} - 1 \geq 0 \Rightarrow (x-1)(x+1) \geq 0$$

$$\frac{-\frac{1}{r} \quad \frac{1}{r}}{+\phi - \phi +} \quad (-\infty, -\frac{1}{r}] \cup [\frac{1}{r}, +\infty)$$

$$\textcircled{2} \quad x^r \neq 0 \quad \Delta_f = (-\infty, -\frac{1}{r}] \cup [\frac{1}{r}, +\infty)$$

$$f(x) = \sqrt{mx^r + rx + 1} \quad mx^r + rx + 1 \geq 0 \quad \textcircled{1} m=0 \Rightarrow 1 \geq 0 \checkmark$$

$$\textcircled{2} m > 0 \Rightarrow \Delta \leq 0 \Rightarrow f_{m^r} - f_m \leq 0$$

$$\Rightarrow f_m(m-1) \leq 0 \Rightarrow 0 \leq m \leq 1$$

$$\frac{0}{+\phi - \phi +}$$

$$r \text{ استرادعالت اد} \rightarrow [0, 1] \Rightarrow m \in [0, 1]$$

$$f(x) = \begin{cases} \frac{x^r - 1}{rx - 1} ; x \neq \frac{1}{r} \\ rx + k ; x = \frac{1}{r} \end{cases} \quad f(x) = g(x) \Rightarrow \frac{x^r - 1}{rx - 1} = rx + 1 ; x \neq \frac{1}{r}$$

$$f(\frac{1}{r}) = g(\frac{1}{r}) \Rightarrow r(\frac{1}{r}) + k = r(\frac{1}{r}) + 1 \Rightarrow r + k = r \Rightarrow k = 0 \Rightarrow a = \frac{1}{r}$$

$$a + k = \frac{1}{r} + 0 = \frac{1}{r}$$

$$f(x) = \begin{cases} \frac{rx^r - r}{rx - 1} ; x \neq -\frac{r}{r} \\ rx + r ; x = -\frac{r}{r} \end{cases} \quad \frac{rx^r - r}{rx - 1} = \frac{(rx - r)(rx + r)}{(rx - 1)} = rx - r$$

$$x \neq -\frac{r}{r} \Rightarrow f(x) = g(x) \Rightarrow rx + b = rx - r \Rightarrow b = -r$$

$$x = -\frac{r}{r} \Rightarrow f(-\frac{r}{r}) = ra(-\frac{r}{r}) + r = -ra + r, \quad g(-\frac{r}{r}) = r(-\frac{r}{r}) + b = -r + b$$

$$f(-\frac{r}{r}) = g(-\frac{r}{r}) \Rightarrow -ra + r = -r + b \quad \frac{b = -r}{-ra + r = -r + b} \Rightarrow -ra + r = -r - r \Rightarrow a = r \Rightarrow a - b = r - (-r) = 2r$$

$$\textcircled{1} x \neq r \Rightarrow f(x) = \frac{(x-r)(x+r)}{(x-r)} = x+r, \quad g(x) = x+r$$

$$\textcircled{2} x = r \Rightarrow g(r) = r+r = f, \quad f(r) = ra^r + ra \Rightarrow g(r) = f(r) \Rightarrow ra^r + ra = f \Rightarrow$$

$$ra^r + ra - f = 0 \Rightarrow (a+r)(a-1) = 0 \Rightarrow a_1 = -r, \quad a_2 = 1$$

دو تابع در مقادیر  $a = -r, a = 1$  با هم برابر می شوند