

$$f(x) = \frac{x^r + a}{r x - b} = \frac{x^r + a}{r x + 1} \quad x = r \rightarrow \frac{f + a}{s} = r \Rightarrow a = 11$$

$$g(x) = r x + b \rightarrow x = r \quad f + b = r \Rightarrow b = -1$$

$$\therefore \rightarrow \frac{1+11}{r+1} = \boxed{f}$$

$$\begin{aligned} a^r + r a &= a^r - f & (1) \\ a^r - a^r + r a &= -f \\ r a &= -f \Rightarrow \boxed{a = -r} \end{aligned}$$

$$f(m) = \frac{r m}{(m-1)(m+1)} \quad D_f = \mathbb{R} - \{1\}$$

$$\textcircled{1} \rightarrow x^r + m x + 1 \rightarrow m^r - r < 0 = m^r < r \Rightarrow r(m, r)$$

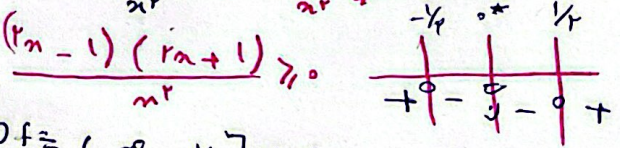
$$\textcircled{2} \rightarrow x^r + m x + 1 \rightarrow \frac{m}{r} = r \quad m = r^2 \Rightarrow -r < m < r$$

$$x=1 \rightarrow f(1) = \frac{f+1}{-1r} = \frac{-a}{1r} \quad (2)$$

$$D_f = \mathbb{R} - \{-1, f\} \rightarrow \frac{-a}{-r} = -r \quad a = 4, b = -1$$

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$$f(m) = \sqrt{\frac{r-1}{m^r}} \rightarrow \frac{r-1}{m^r} \geq 0$$



$$D_f = (-\infty, -1/4] \cup [1/4, +\infty)$$

$$f(m) = \frac{m^r - \sqrt{r}}{-r m^r + a + b} \rightarrow \frac{-a}{-r} = -r \quad (3)$$

$$\frac{-b}{r} = 1 \rightarrow b = -r \quad a + b = -1r$$

$$a_2 \quad \frac{f m^r - 1}{r m - 1} ; m \neq 1 \rightarrow a = \frac{1}{r} \quad (4)$$

$$f m + 1 ; m = 1/r \quad \frac{f m^r - 1}{r m - 1} = r m + 1$$

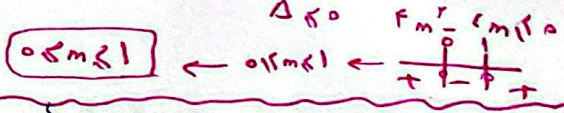
$$m = -1/4 \rightarrow r + k = r \rightarrow k = 0 \rightarrow a + k = \boxed{1/r}$$

$$m = r \rightarrow r a_1 + r a_2 = a^r + a - r = 0$$

$$(a+r)(a-1) = 0 \rightarrow \begin{cases} a = -r \\ a = 1 \end{cases} \quad \boxed{a = -r, 1}$$

$$f(m) = \sqrt{m x^r + r m x + 1} \rightarrow m > 0$$

$$m x^r + r m x + 1 \geq 0 \rightarrow \Delta \leq 0 \quad f m^r = r m + 1$$



$$\frac{a m^r - f}{r m + r} = \frac{(r m - r)(r m + r)}{r m + r} \quad (5)$$

$$r m - r = r m + b \rightarrow b = -r \quad a - b = \textcircled{a}$$

$$m = -\frac{r}{r} \rightarrow -r a + r_2 - 1 - a = -r \quad a = r$$

