

$$x^2 + 2a = x^2 - 4 \Rightarrow 2a = -4 \Rightarrow \boxed{a = -2}$$

از سز استغاده ملاحظه

$$\begin{cases} x^2 + 2a & x > a \\ ax - 4 & x \leq a \end{cases}$$

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$$g(x) \xrightarrow{(2,3)} f + b = 3 \Rightarrow \boxed{b = -1}$$

$$f(x) = \frac{x^2 + a}{2x + 1} \xrightarrow{(2,3)} \frac{f + a}{x + 1} = 3 \Rightarrow f + a = 15 \Rightarrow \boxed{a = 11}$$

$$\frac{x^2 + 11}{2x + 1} \rightarrow f(1) = \frac{12}{3} = \boxed{4}$$

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$$2x^2 + ax + b = k(x+1)(x-4)$$

$$2x^2 + ax + b = k(x^2 - 3x - 4) \Rightarrow k = 2 \Rightarrow 2x^2 - 6x - 8$$

\Downarrow
 $\boxed{a = -6}$ $\boxed{b = -8}$

$$f(x) = \frac{2x+1}{2x^2-6x-8} = f(1) = \boxed{-\frac{3}{12}}$$

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$$-4x^2 + ax + b = k(x+1)^2 \Rightarrow -4x^2 - \frac{8x}{2} - \frac{4}{b} \Rightarrow \boxed{a + b = -12}$$

R - { ... }

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$$f(x) = \frac{2x}{(x-1)(x^2 + mx + 1)}$$

U(II) $\rightarrow -2 < m < 2$

$$D f(x) = R - \{1\}$$

$$\Delta < 0 \Rightarrow m^2 - 4 < 0 \Rightarrow m^2 < 4$$

$$(-2, 2) \Leftrightarrow -2 < m < 2$$

ریشه مختلف از $x=1$ است

$$\begin{cases} \Delta = 0 \\ x = -\frac{b}{a} = 1 \end{cases} \rightarrow m^2 - 4 = 0 \rightarrow m = \pm 2, x = -\frac{m}{2} = 1 \rightarrow \boxed{m = -2}$$

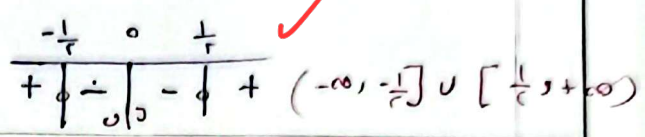
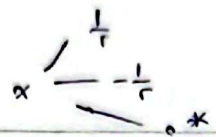
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$$f(x) = \sqrt{r - \frac{1}{x^r}}$$

(2)

$$\epsilon = \frac{1}{x^r} \gg 1 \Rightarrow \frac{r x^r - 1}{x^r} \gg 1$$



$$m x^r + r m x + 1$$

$$\Delta < 0 \Rightarrow r m^2 - r m < 0$$

$$r m(m-1) < 0$$

(1/2)

$$0 < m < 1$$

$m \in [0, 1]$

← $m=0$ nicht
← R nicht $f(x)=1$

$$\frac{1}{+} \frac{1}{-} \frac{1}{+} \Rightarrow 0 < m < 1$$

$$\frac{(rx-1)(rx+1)}{(rx-1)} = rx+1$$

$$g\left(\frac{1}{r}\right) = r \times \frac{1}{r} + 1 = 2$$

$$r \times \frac{1}{r} + k = 2 \Rightarrow k=0$$

$$\Rightarrow 0 + \frac{1}{r} = \frac{1}{r}$$

$$f(x) = \begin{cases} \frac{r x^r - 1}{r x - 1} = x \neq \frac{1}{r} \\ r x + k, x = \frac{1}{r} \end{cases}$$

(2)

$$\frac{9x^r - \epsilon}{cx+r} = \frac{(cx-r)(cx+r)}{(cx+r)} = cx-r \Rightarrow b = -r$$

(2)

$$g(x) = cx - r \Rightarrow g\left(-\frac{r}{c}\right) = -\epsilon$$

$$f\left(-\frac{r}{c}\right) = -ra + r = -\epsilon \Rightarrow -ra = -\epsilon$$

$$a = \frac{\epsilon}{r}$$

$$a - b = \frac{\epsilon}{r}$$

$$g(r) = r+r = \epsilon$$

$$f(r) = r a^r + r a$$

$$r a^r + r a = \epsilon \Rightarrow r a^r + r a - \epsilon = 0$$

$$\div r \Rightarrow a^r + a - \frac{\epsilon}{r} = 0$$

$$(a+r)(a-1) = 0$$

