

$$f(-\frac{1}{a}) = \frac{1}{f} \rightarrow -\frac{1}{a^r} [-1] = \frac{1}{f} \rightarrow a^r = f \rightarrow \begin{cases} a = r \times \\ a = -r \end{cases}$$

$$\text{if } a = -r \rightarrow b = 1 \rightarrow b - a = r$$

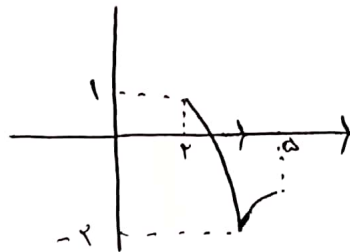
$$g(x) = -\log_r \frac{(-x+r)}{r} \quad g(x) = -\log_r^{-x+r} + r$$

$$g(-1) + g(-4r) = -1 + (-9) = -10$$

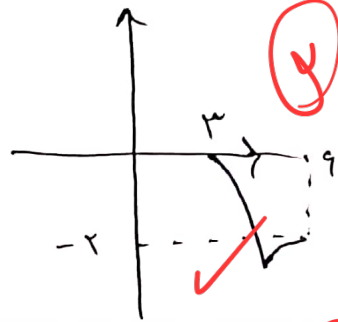
$$g(-1) = -1 \rightarrow g(-1) + g(-4r) = -1$$

$$g(-4r) = -9$$

$g(x)$



$$g_r = f(x-1) - 1$$



$$g(x) = \left| \frac{x-1}{x-r} \right| + 1 \quad g(x) + x < 0 \quad g(x) < -1 - x$$

$$-1 - x > 0 \rightarrow x < -1 \quad (1)$$

$$(1) \cap (2) \rightarrow (-\infty, -\sqrt{r}]$$

$$\frac{x-1}{x-r} < -1 - x \rightarrow \frac{r(x-\sqrt{r})(x+\sqrt{r})}{x-r} < 0 \quad (2) \quad \begin{matrix} -\sqrt{r} & \sqrt{r} & r \\ - & + & - \end{matrix}$$

$$f(x) = \frac{rv}{\lambda} (x-r)^r + rv$$

$$\forall f(x) - f'(x) \geq 0 \rightarrow f(x) / (1 - f(x)) \geq 0$$

$$f(x) = 1 \rightarrow x = \frac{1}{r}$$

$$x \in [0, \frac{1}{r}] \rightarrow \text{max at } x = \frac{1}{r}$$

$$y = -\frac{1}{\sqrt{3}}(x-1)^2 + 3 \quad y = - \rightarrow -\frac{1}{\sqrt{3}}(x-1)^2 = -3$$

$$(x-1)^2 = 9$$

$$\begin{cases} x-1 = 3 \rightarrow x = 4 \\ x-1 = -3 \rightarrow x = -2 \end{cases}$$

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$$x = 1, y = 3$$

$$y = x^2 - 1 \rightarrow -1 = -1$$

$$2x+2 = 1 \rightarrow x = -\frac{1}{2}$$

$$\rightarrow \alpha\beta = \frac{\sqrt{3}}{3}$$

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$$x - \sqrt{x(x+1)} \rightarrow \sqrt{2x+2} - 3 + 5 = \sqrt{2x+2} + 2$$

$$\sqrt{2x+2} + 2 = \frac{\sqrt{3}}{2} \rightarrow \sqrt{2x+2} = \frac{\sqrt{3}}{2} \rightarrow 2x+2 = \frac{3}{4}$$

$$x = \frac{1}{4}$$

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$$Df(x-1) = (a+1, 5) \rightarrow a < x-1 \leq 5 \rightarrow a+1 < x \leq 6$$

$$Dg(x+1) = [2, b-1] \rightarrow -1 \leq x+1 < b \rightarrow -2 \leq x < b-1$$

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$$\begin{cases} a+1 < b-1 \rightarrow a-b < -2 \\ a+1 = -2 \rightarrow a = -3 \\ b-1 = 6 \rightarrow b = 7 \end{cases}$$

$$a-b = -4$$

$$Df\left(\frac{x}{2}+1\right) = [-2, 5] \rightarrow Df = \left[-\frac{1}{2}, \frac{\sqrt{3}}{2}\right]$$

$$Dy_2 = Df = \left[-\frac{1}{2}, \frac{\sqrt{3}}{2}\right]$$

$$R_f = [0, \sqrt{5}]$$

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