

$$D_{g \circ f} = \{x \in D_f : f(x) \in D_g\} \quad (1)$$

$$f(x) = \sqrt{\log_r^{x-1}} \rightarrow \log_r^{x-1} \geq 0 \rightarrow x-1 \geq 1 \rightarrow x \geq 2 \quad (*)$$

$$g(x) = \sqrt{-(x-2)^2} \rightarrow -(x-2)^2 \geq 0$$

$$\rightarrow (x-2)^2 \leq 0 \rightarrow x-2=0 \rightarrow x=2 \in D_g \quad f(x) \in D_g \rightarrow \sqrt{\log_r^{x-1}} = 2 \rightarrow \log_r^{x-1} = 4$$

$$\rightarrow x-1=14 \rightarrow x=15 \quad (**)$$

$$(*) \cap (**) \rightarrow D_{g \circ f} = \{15\}$$

$$g \circ f(x) = g(f(x)) = (fx - a)^r - r^2(fx - a) + 11 \rightarrow 5x^2 - 24x + 14 \quad (2)$$

$$f \circ g(x) = f(g(x)) = r(x^r - rx + 1) - a = 5x^2 - 4x + 11$$

$$g \circ f(x) = f \circ g(x) \rightarrow 5x^2 - 24x + 14 = 5x^2 - 4x + 11 \rightarrow 5x^2 - 20x + 3 = 0$$

در اینجا $a^r + b^r = (a+b)^r - rab = S^r - rP$ $S = \frac{-b}{a} = 10$ $D = \frac{C}{a} = \frac{rV}{r}$ $\rightarrow 100 - 2V = 4r$

(t) وقتی از $g \circ f(x)$ به $f(x)$ و از $f(x)$ به x درجه دوم و x به t درجه دوم است و درجه دوم

$$fx = t \rightarrow x = \frac{t}{f} \quad g(t) = \omega \left(\frac{t}{f} \right)^r + 11 = \frac{\omega t^r}{f} + 11 \rightarrow g(x) = \frac{\omega x^r}{f} + 11$$

$$g(x-v) = \frac{\omega (x-v)^r}{f} + 11 = \frac{\omega x^r}{f} - \frac{v \omega x}{f} + \frac{r \omega v}{f} + 11 \rightarrow S \left| \begin{array}{l} \frac{-b}{ra} = \frac{v_0}{\frac{\omega}{f}} = v \\ y_s \rightarrow = \frac{r \omega}{f} - \frac{r \omega v}{f} + \frac{r \omega v}{f} \end{array} \right. \rightarrow \frac{r \omega}{f} = 11$$

$$\left\{ \begin{array}{l} f(g(x)) = 5x^2 - 4x - 1 \\ f(g(x)) = 5g - 4 \end{array} \right. \rightarrow 5x^2 - 4x - 1 = 5g - 4 \rightarrow g(x) = x^2 - 2x + 1 \rightarrow (x-1)^2$$

$$g \circ f(x) = g(f(x)) = (5x - 4 - 1)^2 = 9x^2 - 20x + 16$$

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۹ در کل همان طول از میرا است

و بایه عجز شود تا حدی که دستاید

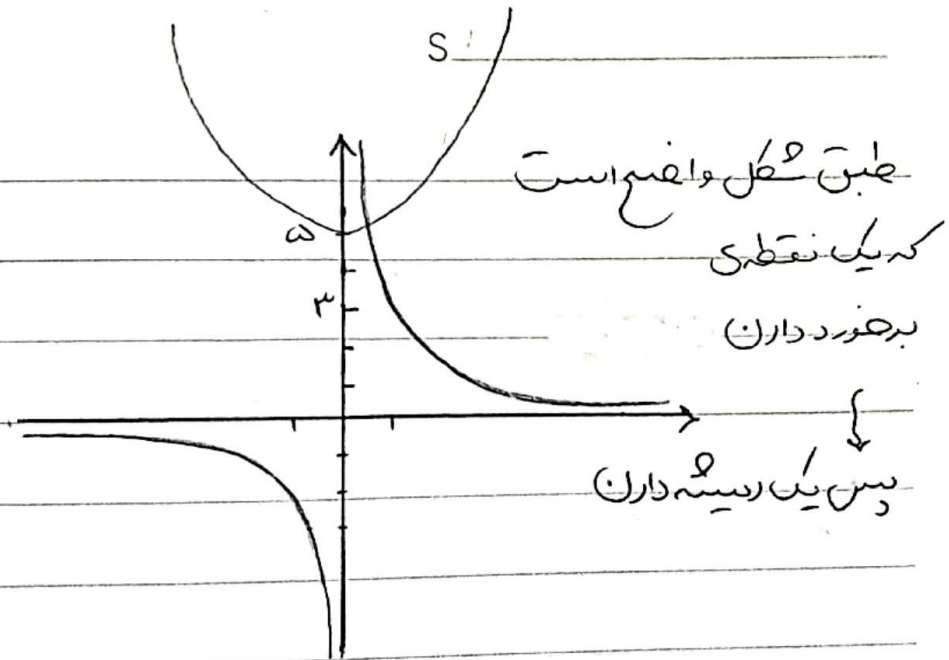
$$g \circ f = \log_{\mu} q^x = \log_{\mu} (\mu^r)^x = \log_{\mu} \mu^{rx}$$

$$\hookrightarrow x \in (0, r] \rightarrow \begin{cases} \text{max} \\ - \end{cases} \text{max} \leq r$$

$$D_{f \circ g} = \{x \in D_g : g(x) \in D_f\} \rightarrow D_g = \mathbb{R} \quad D_f = (0, +\infty) \rightarrow g(x) \in D_f$$

D

$$\rightarrow x(x^2 + a) = 3 \rightarrow x^2 + a = \frac{3}{x}$$



۱۰) اول $f(x)$ را مساوی ۳ قرار می دهیم که بنویسیم $g(x) = 1 \rightarrow f(x) = 3$

$x - \frac{3}{x} = 1 \rightarrow x^2 - 3x - 3 = 0 \rightarrow x = -1, 4$ $g(f(x))$ به ازای x سه ۱!

$$g(f(-1)) = -a - 3 = 1 \rightarrow a = -4$$

$$g(f(4)) = 4a + 1 = 1 \rightarrow a = 0$$