

امیر باستان

$$Og \circ f = ? \quad f(x) = \sqrt{1 + g^{(n-1)}}$$

$$x \in O_f, f(x) \in O_g$$

$$1 \cdot g^{(n-1)} \geq 0 \Rightarrow n-1 \geq 1 \Rightarrow n \geq 2$$

$$g(x) = \sqrt{-x^2 + 2x - 2}$$

$$\sqrt{-(x-1)^2} \rightarrow O_g = 2$$

$$① \wedge ② = O_g \circ f = 2$$

$$f \circ g(x) = 1(x^2 - 4x + 1) - \Delta - 2x^2 - 4x + 11$$

$$g \circ f(x) = (x-0)^2 - 2(x-0) + 1 = x^2 - 2x + 1$$

$$\Rightarrow 2x^2 - 4x + 1 = x^2 - 2x + 1 \Rightarrow x^2 - 2x = 0 \Rightarrow \frac{-b}{a} = 1$$

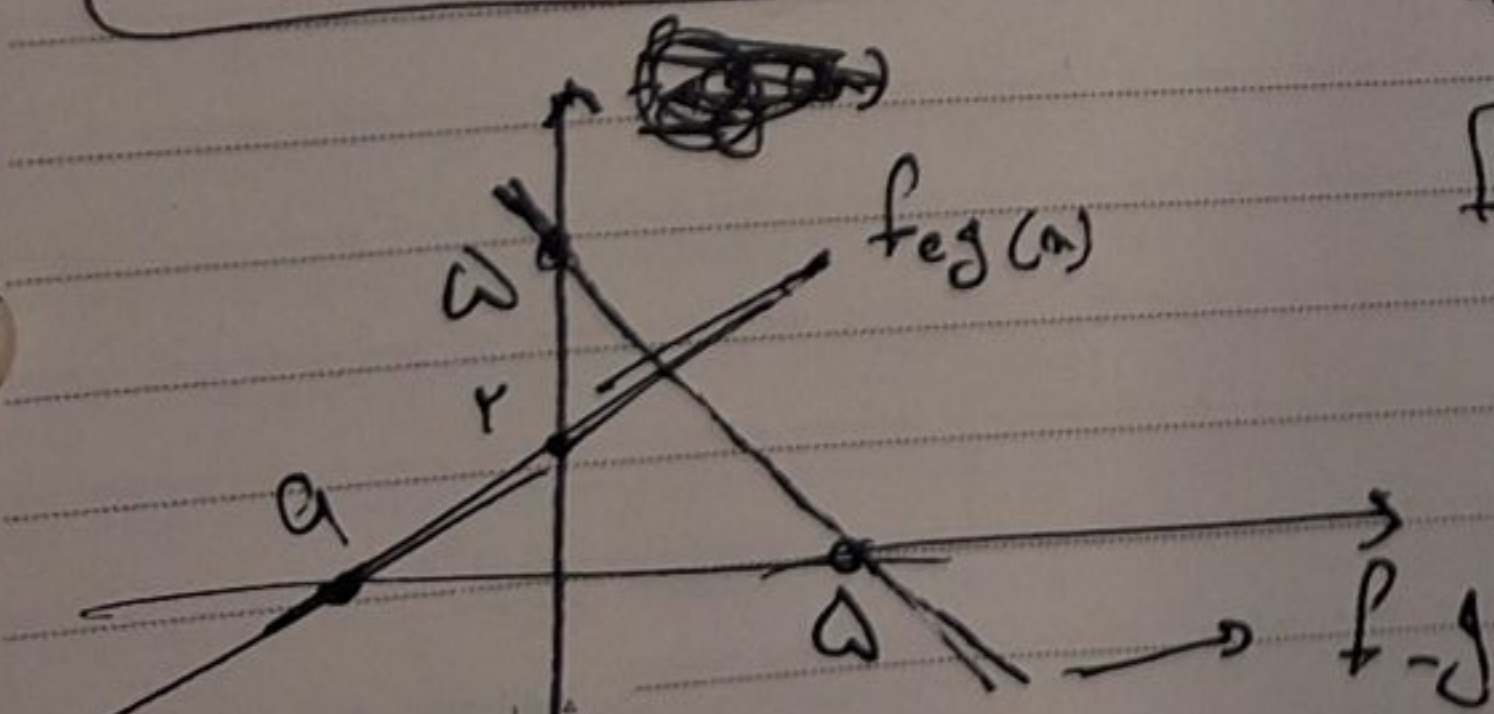
$$g \circ f(x) = \Delta x^2 + 11 \quad f(x) = 2x \quad \Rightarrow g(x) = \Delta x^2 + 11 \Rightarrow g(t) = \Delta + \frac{11}{x} \Rightarrow \min t = 0 \Rightarrow g(t) = 11$$

$$\min g(x-v) \Rightarrow g(x-v) = g(0) \Rightarrow x = v, g(t) = 11$$

$$f(x) = 2x - \varepsilon \quad g(x) = f \Rightarrow 3g(t) - \varepsilon = 2x - 4x \Rightarrow g(t) = \frac{2x - 4x + \varepsilon}{3} = \frac{-2x + \varepsilon}{3}$$

$$g \circ f(x) = ? \Rightarrow (2x - \varepsilon)^2 - 2(2x - \varepsilon) + \frac{\varepsilon}{3} = 4x^2 - 4x + \frac{\varepsilon}{3} - 4x + 2\varepsilon = 4x^2 - 8x + 2\varepsilon + \frac{\varepsilon}{3}$$

$$4x^2 - 8x + \frac{7\varepsilon}{3}$$



$$f-g = -x + 11 \quad \begin{cases} f(x) = 2x - \varepsilon \\ g(x) = \frac{2x - 4x + \varepsilon}{3} \end{cases}$$

$$f(g(x)) - f(x) = 12 - f(x) \Rightarrow$$

$$f(x-a) = 12 - f(x) \Rightarrow f(x) = 12 - f(x) + 10 = 22 - f(x)$$

$$g(x) = 2x + 19$$

$$f \circ g = 12 - f(-2x + 19) = 12 - (-4x + 38) = 4x - 26 \Rightarrow$$

$$4x - 26 = \frac{1}{a}x + 2 \Rightarrow \frac{-28}{17} = \frac{1}{a}x + 2 \Rightarrow a = -\frac{17}{28}$$

۲۳	۱۶	۹	۲
۲۴	۱۷	۱۰	۳
۲۵	۱۸	۱۱	۴
۲۶	۱۹	۱۲	۵
۲۷	۲۰	۱۳	۶
۲۸	۲۱	۱۴	۷
۲۹	۲۲	۱۵	۸

$$f(x) = 9^x$$

$$g(x) = \log_3 x \Rightarrow x > 0 \quad (1)$$

$$f \circ g(x) \leq g \circ f(x)$$

$$9^{\log_3 x} = x \quad \log_3 9^x = x \Rightarrow \log_3 x = x \Rightarrow x = 1 \quad (2)$$

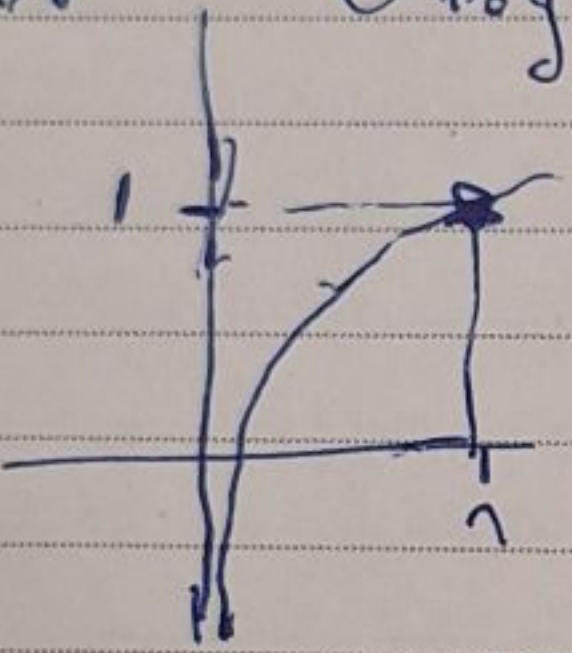
$$f\left(\frac{x^2-1}{x}\right) = 9^{\frac{x^2-1}{x}} = 9^{x-\frac{1}{x}} \Rightarrow f\left(\frac{x^2-1}{x}\right) = \frac{9^x}{9^{\frac{1}{x}}} = \frac{9^x}{9^{\frac{1}{x}}}$$

$$f(x) = 9^x \Rightarrow f(x) = 9^x + x$$

$$f(x) = \log_3 x \Rightarrow x > 0$$

$$g(x) = \log_3 x$$

$$f \circ g(x) = \log_3 9^x = x$$



$$f \circ g(x) = x \Rightarrow f \circ g(x) = (-\infty, 1)$$

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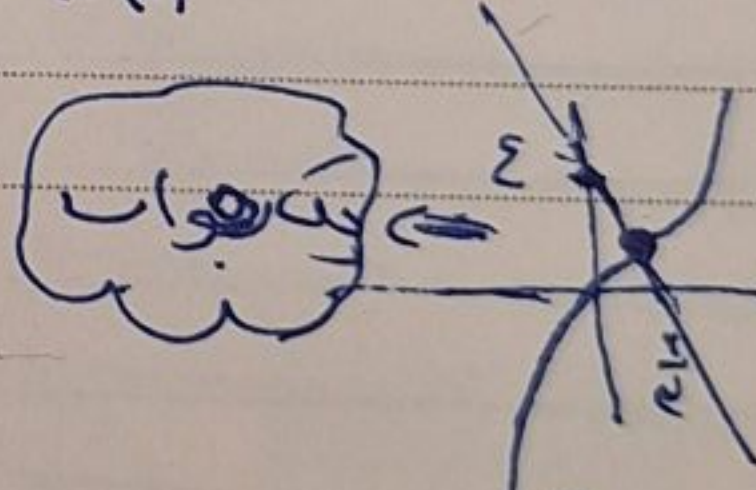
$$f \circ f(x) = 1 - 3^x f(x)$$

$$g(x) = x - 1$$

$$h(x) = x^3 + 3x + 1$$

شب قدر - روز بزرگداشت نظامی گنجوی

$$h(g(x)) = f(x) \Rightarrow \text{تعداد ریشه ها}$$



$$(x-1)^3 + 3x - 2 = 1 - 3^x \Rightarrow (x-1)^3 + 3x - 2 = 1 - 3^x$$

$$x^3 - 1 - 3^x + 3x + 2 = 1 - 3^x \Rightarrow x^3 + 3x - 1 = 1 - 3^x \Rightarrow x^3 + 3x - 2 = 1 - 3^x$$

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

$$g \circ f(x) = a x^3 + 2x$$

$$g(x) = 1$$

$$a = ?$$

$$f(x) = x - \frac{1}{x} = 2 \Rightarrow x - \frac{1}{x} = 2 \Rightarrow x^2 - 2x - 1 = 0$$

$$g\left(x - \frac{1}{x}\right) = a x^3 + 2x \Rightarrow x < 2 \Rightarrow g(x) = 9x + 1 = 1 \Rightarrow a = 0$$

$$x < -1 \Rightarrow g(x) = -a - 2 = 1 \Rightarrow a = -1$$

M	30	2	9	16	23
T	31	3	10	17	24
W		4	11	18	25
T		5	12	19	26
F		6	13	20	27
S		7	14	21	28
S	1	8	15	22	29