

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

$$D_f: x-1 > 0 \Rightarrow x > 1$$

$$\log_2(x-1) > 0 \Rightarrow x-1 \geq 1 \Rightarrow x \geq 2 \} \cap D_f = x \in [2, +\infty)$$

$$D_{g \circ f} = \{x \in D_f; f(x) \in D_g\} = \left\{ \begin{array}{l} f(x) = 2 \Rightarrow \log_2 x - 1 = 0 \Rightarrow x = 4 \\ x \geq 2 \end{array} \right\} \cap D_g = \{4\}$$

$$2(x^2 - 4x + 1) - 5 = (2x - 5)^2 - 3(2x - 5) + 11$$

$$2x^2 - 4x + 11 = 4x^2 - 10x + 15 - 6x + 15 + 11$$

$$2x^2 - 10x + 11 = 0$$

$$\alpha^2 + \beta^2 = S^2 - 4P = 100 - 100 = 0$$

$$S = \frac{-b}{a} = 10$$

$$P = \frac{c}{a} = \frac{11}{2}$$

$$2x^2 - 10x + 11 = 0 \rightarrow 100 - 100 = 0$$

$$g(f(x)) = 2x^2 + 11$$

$$g(x) = \frac{5}{x} x^2 + 11$$

$$g(2x) = 2x^2 + 11$$

$$g(x-1) = \frac{5}{x-1} (x-1)^2 + 11$$

$$2x = t \Rightarrow x = \frac{t}{2}$$

$$g(t) = \frac{5}{t} t^2 + 11$$

$$g(x-1) = \frac{5}{x-1} (x-1)^2 + 11$$

$$\min = 11$$

$$f(g(x)) = 19g(x) - 1 = 19x^2 - 4x - 1 \Rightarrow 19g(x) = 19x^2 - 4x + 1$$

$$g(x) = x^2 - 2x + 1 = (x-1)^2$$

$$g \circ f(x) = (19x^2 - 4x - 1)^2 = (19x^2 - 4x - 1)^2$$

$$f \circ g \text{ یی تابع خطی است } \Rightarrow f \circ g \text{ یی تابع خطی است } , f \circ g \text{ یی تابع خطی است } \Rightarrow f \circ g \text{ یی تابع خطی است}$$

$$\begin{cases} f(0) - g(0) = 5 \\ 19f(0) - 1 = 19g(0) \end{cases}$$

$$\Rightarrow f(0) = 1, g(0) = -1$$

$$\begin{cases} f(5) = g(5) \\ 19f(5) - 1 = 19g(5) \end{cases}$$

$$\Rightarrow f(5) = g(5) = 19$$

$$m_f = \frac{19-1}{5-0} = 4$$

$$\Rightarrow f(x) = 4x + 1$$

$$\begin{cases} f \circ g(x) = 4x + 1 \\ 19f(x) - 1 = 19g(x) \end{cases}$$

$$\Rightarrow 4a + 1 = 0 \Rightarrow a = -\frac{1}{4}$$

$$m_g = \frac{19-(-1)}{5-0} = 4$$

$$\Rightarrow g(x) = 4x - 1$$

$$\left. \begin{aligned} f \circ g &= 9^{\log_3 x} = x^2 & D_{f \circ g} &= x \in (0, +\infty) \\ g \circ f &= \log_9 x^2 = x \log_9 x = \frac{1}{2}x & D_{g \circ f} &= \mathbb{R} \end{aligned} \right\} \cap \cdot \leq x \leq 2$$

$$x^2 \leq \frac{1}{2}x \Rightarrow x^2 - \frac{1}{2}x \leq 0 \Rightarrow 0 \leq x \leq \frac{1}{2}$$

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$$f\left(x - \frac{r}{x}\right) = x^r - r + \frac{r}{x^r} + x - \frac{r}{x} = \left(x - \frac{r}{x}\right)^r + x - \frac{r}{x}$$

$$f(t) = t^r + t \quad f(x) = x^r + x$$

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$$D_{f \circ g}: D_g = \mathbb{R} \Rightarrow \Lambda x - x^2 > 0 \Rightarrow 0 < x < \Lambda$$

$$D_f = (0, +\infty)$$

$$\max_{g(x)} = \frac{r}{14} \Rightarrow R_{f \circ g} = (-\infty, f(14)] = (-\infty, r]$$

$$A \cap B = (0, \Lambda) \cap (-\infty, r] = (0, r] \quad \{1, 2, 3, r\}$$

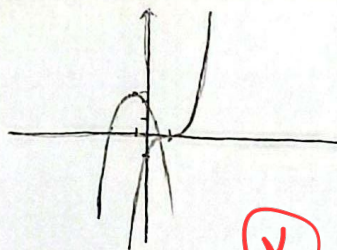
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$$f\left(\frac{f(x)}{t}\right) = 1 - \frac{r}{t^r} f^r(x)$$

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

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

$$(x-1)^r = -\frac{r}{x^r} - r(x-1) \quad \checkmark$$



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بل جواب دارد

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

$$\left\{ \begin{aligned} x - 1 &= \frac{r}{x} \Rightarrow x^2 - x - r = 0 \\ -1 + r &= \frac{r}{x} \Rightarrow x = -1 \end{aligned} \right.$$

$$4fa + \Lambda = \Lambda \rightarrow a = 0$$

$$-a - r = \Lambda \rightarrow a = -1$$

$$g \circ f(r) = g \circ f(-1) = \Lambda$$

$$4fa + \Lambda = -a - r = \Lambda \Rightarrow$$

مقداری برای a وجود ندارد

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