

مرد کردیجا - تکلیف شماره ۸

$$\{x \mid x \in D_f, f(x) \in D_g\} \Rightarrow \text{پایه } n-1 \Rightarrow x-1, 1 \Rightarrow x \geq 2 \quad (1)$$

$$g(x) = \sqrt{-(x-2)^2} \Rightarrow D_g = 2 \Rightarrow D_{g \circ f} = \{x \mid x \in D_f, x=1 \vee\} = \{1 \vee\}$$

$$f \circ g(x) = 2(x^2 - 3x + 1) - 2 = 2x^2 - 6x + 11 \quad (2)$$

$$\begin{aligned} g \circ f(x) &= (2x-2)^2 - 2(2x-2) + 1 = 4x^2 + 2\omega - 2\omega x - 6x + 1\omega + 1 = 4x^2 - 2\omega x + 3\omega \\ &\Rightarrow 4x^2 - 6x + 11 = 4x^2 - 2\omega x + 3\omega \Rightarrow 4x^2 - 2\omega x + 3\omega = 0 \Rightarrow x^2 + \beta^2 = (5)^2 - 2\omega \\ 100 - 3\omega &= \boxed{9\omega} \end{aligned}$$

$$\begin{aligned} g(2x) &= \omega x^2 + 11 \quad \frac{x}{2} = x \Rightarrow g\left(\frac{x}{2}\right) = \omega \frac{x^2}{4} + 11 = \frac{\omega}{4} x^2 + 11 \Rightarrow g(x) = \frac{\omega}{4} x^2 + 11 \quad (3) \\ &\Rightarrow g(x-2) = \frac{\omega}{4} (x-2)^2 + 11 \xrightarrow{\text{کمترین مقدار در } x=2} \min_{x=2} g = 11 \\ &\quad \text{این که } x-2 \text{ منبسط} \end{aligned}$$

$$3(g) - 4 = 3x^2 - 6x - 1 \Rightarrow 3g = 3x^2 - 6x + 3 \Rightarrow g = x^2 - 2x + 1 \quad (4)$$

$$\Rightarrow g \circ f(x) = (3x-4)^2 - 2(3x-4) + 1 = 9x^2 - 2\omega x + 2\omega = g \circ f(x)$$

$$f \circ g = -x + 2 \quad , \quad f \circ g = \frac{r}{a} x + r$$

$$\Rightarrow r \left(\underbrace{g(x) - f(x)}_{-x+2} \right) = -1x - f(x) \Rightarrow f(x) = -rx + r^2, \quad g(x) = -x + 2$$

$$f \circ g = r^2 - r(-rx + r^2) = r^2 + rx - r^2 = rx - r^2 \Rightarrow rx - r^2 = \frac{r}{a} x + r$$

$$\Rightarrow \frac{-r^2}{1} + r = \frac{r}{a} x + r \rightarrow \boxed{a = \frac{-r}{1}}$$

$$f \circ g = r^2 \log_r^x = r^2 \log_e^{x^r} = x^r \rightarrow g \circ f = \log_r^{r^x} = x \log_r^r = rx$$

$$x^r \leq rx \Rightarrow x^r - rx \leq 0 \Rightarrow \frac{0}{x-1} + \frac{r}{x-1} \Rightarrow [0, r] \Rightarrow \{0, 1, r\}$$

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

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

$$f \circ g = \log_r^{1x - x^r} \Rightarrow -x^r + 1x > 0 \Rightarrow \frac{0}{-1} + \frac{1}{-1} \Rightarrow (0, 1)$$

$$R_{f \circ g} \Rightarrow \text{graph} \Rightarrow R_{f \circ g} = (-\infty, 1) \Rightarrow A \cap B = (0, 1) \text{ مرسوم}$$

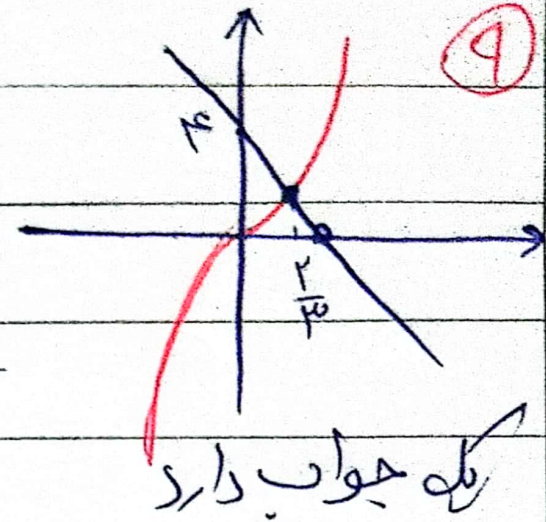
$$f \circ f(x) = 1 - x f'(x)$$

$$h(g(x)) = f(x)$$

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

$$(x-1)^2 \cdot x = 1 - x^2$$

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



$$f(x) = x - \frac{x}{a} \Rightarrow f(x) = x - \frac{x}{a} = 1 \Rightarrow \underline{x = a, x = -1}$$

$$g(x - \frac{x}{a}) = ax^2 + 2x \Rightarrow x = a \Rightarrow g(a) = 4(a+1) = 1 \Rightarrow \boxed{a = 0}$$

$$x = -1 \Rightarrow g(-1) = -a - 2 = 1 \Rightarrow \boxed{a = -1}$$