

$$f(x) = \sqrt{\log_y(x-1)}$$

$$g(x) = \sqrt{-x^2 + 4x - 4}$$

$$Df(x) = \log_y \geq 0 \quad \begin{matrix} x-1 \geq 1 \\ x \geq 2 \end{matrix}$$

$$x-1 > 0 \quad x > 1$$

آیه انصاری
دوازدهم دختران
تالیف ۸

$$Dg \text{ of } \rightarrow x \in Df / f(x) \in Dg$$

$$x \geq 2$$

$$\sqrt{\log_y(x-1)} = 2$$

$$\log_y(x-1) = 4$$

$$x-1 = 16$$

$$x = 17$$

$$\text{نقطه } \rightarrow x = 17$$

$$19, 28 \quad D = x \geq 2$$

$$-x^2 + 4x - 4 \geq 0$$

$$x^2 - 4x + 4 \leq 0$$

$$(x-2)^2 \leq 0$$

$$x = 2$$

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

$$fog(x) = gof(x)$$

$$g(x) = x^2 - 4x + 11$$

$$fog \rightarrow 2x^2 - 4x + 11 - 2 \quad 2x^2 - 4x + 9$$

$$gof \rightarrow (2x-2)^2 - 4(2x-2) + 11 \quad 4x^2 - 8x + 4 - 8x + 8 + 11$$

$$2x^2 - 4x + 11 = 2x^2 - 8x + 19$$

$$2x^2 - 8x + 19 = 0$$

$$x = \frac{8 \pm \sqrt{64 - 4 \cdot 2 \cdot 19}}{4}$$

$$\frac{8 \pm \sqrt{64 - 152}}{4}$$

$$\frac{8 \pm \sqrt{-88}}{4}$$

$$\frac{8 \pm \sqrt{-88}}{4} = \frac{8 \pm \sqrt{88}i}{4}$$

$$gof = 2x^2 + 11 \quad \omega\left(\frac{x}{f}\right) + 11 \quad \frac{\omega x^2}{f} + 11 \rightarrow g(x)$$

$$f(x) = 2x \quad 2x = 2 \quad x = 1$$

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

$$\frac{\omega(x^2 + 4x + 1)}{f} + 11$$

$$\frac{\omega x^2 + 4\omega x + \omega}{f}$$

$$\frac{\omega x^2 + 4\omega x + \omega}{f} = 11$$

$$\frac{\omega x^2 + 4\omega x + \omega}{f} = 11 \quad \frac{\omega}{f} = \frac{11}{x^2 + 4x + 1}$$

$$f(x) = 3x - 1$$

$$fg - f = 3x^2 - 4x - 1$$

$$fog = 3x^2 - 4x - 1$$

$$3g = 3x^2 - 4x + 3$$

$$g = x^2 - 4x + 1$$

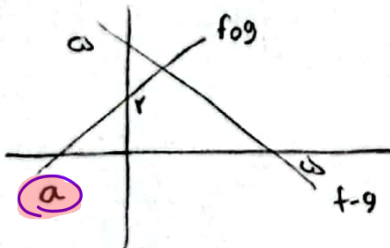
$$gof \rightarrow (3x-1)^2 - 4(3x-1) + 1$$

$$9x^2 - 6x + 1 - 12x + 4 + 1$$

$$gof \rightarrow 9x^2 - 18x + 6 = 0$$

$$f - g = -x + 2$$

$$fog = \frac{1}{a}x + 2$$



طبقه اول

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

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

$$2g(x) = 3f(x) - 14$$

$$2g(x) - 3f(x) = -14$$

$$2f(x) - 2g(x) = -14 \quad fog \rightarrow 2(3x-1) + 2$$

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

$$f(x) = 2x + 2$$

$$g(x) = 3x - 1$$

$$4x + 2 = \frac{1}{a}x + 2$$

$$4 = \frac{1}{a} \quad a = \frac{1}{4}$$

$$2g(x) - 4x - 14 = -14$$

$$2g = -14 + 4x + 14$$

$$2g = 4x - 2 \quad g = 2x - 1$$

$$-\frac{1}{a}x + 2 = 4x + 2 \rightarrow a = -\frac{1}{4}$$

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

$$g(x) = \log_p x$$

$$f \circ g \leq g \circ f$$

$$q^{\log_p x} \leq \log_p q x$$

$$\log_p x =$$

$$q^{\log_p x} \leq x$$

$$\log_q x \geq \log_p x \quad \frac{1}{p} \log_p x \geq \log_p x$$

$$(px)^{\frac{1}{p}} \geq x \quad \sqrt{px} \geq x \quad x^p - px \leq 0$$

$$px \geq x^p \quad x(x-p) \leq 0$$

$$p, q, x$$

$$+ \frac{0}{-} +$$

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

$$x - \frac{p}{x} = t$$

$$x^p + \frac{p}{x^p} - p + x - \frac{p}{x} \rightarrow t^p + t$$

$$f(x) = x^p + x$$

$$\left(x - \frac{p}{x}\right)^p = x^p + \frac{p}{x^p} - p = t^p$$

$$Rg = (-\infty, 14] \xrightarrow{\log_p} (-\infty, 5] \rightarrow Rf \circ g = (-\infty, 5]$$

$$f(x) = \log_p x$$

$$g(x) = 14x - x^2$$

$$f \circ g \rightarrow x \in Dg / g(x) \in Df$$

$$R \quad 14x - x^2 > 0$$

$$A \cap B = (1, 5]$$

$$Df \circ g = (0, 14)$$

$$A \cap B = [5, 14)$$

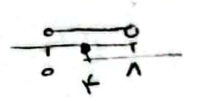
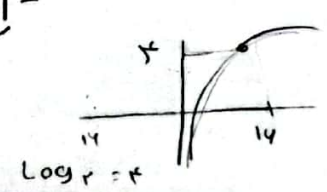
$$R f \circ g = [5, +\infty)$$

$$A \cap B$$

$$-x^2 + 14x = \frac{14}{-1} = -14$$

$$x \in [14, +\infty)$$

$$\frac{0}{-1} + \frac{14}{-1} = -14$$



صحيح

$$f(x) = 1 - 3x^p$$

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

$$h(x) = x^p + px + 1$$

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

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

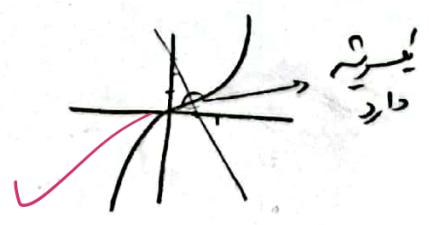
$$(x-1)^p + p(x-1) + 1 = 1 - 3x^p$$

$$x^p - 1 - 3x^p + px + p + 1 = 1 - 3x^p$$

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

$$x^p + px - p = 0$$

$$x^p = -px + p$$



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

$$g \circ f(x) = ax^p + px$$

$$g(p) = 1$$

$$f(x) = p$$

$$x - \frac{1}{x} = p$$

$$x^p - p = px$$

$$x^p - px - p = 0$$

$$9 - f(-4)$$

$$ax^p + px = 1$$

$$x = p$$

$$14a + 1 = 1$$

$$a = 0$$

$$x = 1$$

$$a + p = 1$$

$$a = 10$$

$$\frac{p+a}{p} = f \quad \frac{p-0}{p} = -1$$