

$$f(n) = \sqrt{\log_r^{n-1}}$$

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

$$D_{g \circ f}(n) = ?$$

$$g \circ f \rightarrow f(n) = t \rightarrow \sqrt{-t^2 + \varepsilon t - 2} = \sqrt{-t^2 + \varepsilon t}$$

کفقا اتره به 10 است!

$$t = 2 \rightarrow f(n) = 2 \rightarrow \sqrt{\log_r^{n-1}} = 2 \rightarrow \log_r^{n-1} = \varepsilon$$

$$t = 2 \rightarrow 0 \rightarrow t = 2$$

$$n-1 = 14$$

$$n = 15$$

$$D_{g \circ f} = \{15\}$$

1

$$f(n) = 2n - 2$$

$$g(n) = n^2 - 3n + 11$$

$$f \circ g(n) = g \circ f(n)$$

$$x^2 + 3^2 = ?$$

$$f \circ g(n) = 2(n^2 - 3n + 11) - 2 \rightarrow 2n^2 - 4n + 11$$

$$g \circ f(n) = (2n - 2)^2 - 3(2n - 2) + 11 = 2n^2 - 4n + 11$$

$$2n^2 - 4n + 11 = 2n^2 - 4n + 11 \rightarrow 2n^2 - 4n + 11 = 2n^2 - 4n + 11$$

$$x^2 + 3^2 = 5^2 - 2p \rightarrow 5 = \frac{25}{2} = 10 \rightarrow 5^2 - 2p = 10 \rightarrow 25 - 2p = 10 \rightarrow 2p = 15 \rightarrow p = \frac{15}{2}$$

$$/P = \frac{15}{2}$$

2

$$g \circ f(n) = \omega n^2 + 11$$

$$f(n) = 2n$$

$$\min g(n-v) = ?$$

$$f(n) = 2n \rightarrow 2n = t \rightarrow n = \frac{t}{2} \rightarrow \omega \left(\frac{t}{2}\right)^2 + 11 = g(t)$$

$$g(n) = \frac{\omega n^2}{\varepsilon} + 11 \rightarrow g(n-v) = \frac{\omega(n-v)^2}{\varepsilon} + 11$$

$$g(n-v) = \frac{\omega n^2}{\varepsilon} - \frac{2\omega n v}{\varepsilon} + \frac{\omega v^2}{\varepsilon} + 11$$

$$(n-v)\alpha > 0 \rightarrow \min \mu \rightarrow \min \left\{ \frac{-b}{2a} = v \right.$$

$$\left. y \leq 11 \right\}$$

3

$$f(n) = 3n - 2$$

$$f \circ g(n) = 3n^2 - 4n - 1$$

$$g \circ f(n) = ?$$

$$f \circ g(n) = 3g - 2 = 3n^2 - 4n - 1 \rightarrow 3g = 3n^2 - 4n + 1$$

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

$$g \circ f(n) = (3n - 2)^2 - 2(3n - 2) + 1 \rightarrow 9n^2 - 12n + 5$$

4

$$rg(n) = rf(n) - 12$$

$$g(n) = \frac{r}{f} f(n) - v \rightarrow$$

مشتق غلط است

$$f - g(n) = -n + 2 \rightarrow f(n) - \frac{r}{f} f(n) + v \rightarrow \frac{1}{f} f(n) + v = f(n) - g(n)$$

$$\rightarrow \frac{1}{f} f(n) + v = -n + 2 \rightarrow f(n) = 2n + 2 \rightarrow f \circ g(n) = 2(2n - 1) + 2 = 4n$$

$$g(n) = \frac{r}{f}(2n + 2) - v \rightarrow g(n) = 2n - 1$$

$$f \circ g(n) = 0 \rightarrow 4n + 2 = 0$$

$$n = -\frac{1}{2} \rightarrow a$$

5

$$f(n) = q^n \quad g(n) = l \cdot g_r^n \quad f \circ g(n) \leq g \circ f(n)$$

$$f \circ g(n) = q^{l \cdot g_r^n} = n^{q^r} = n^r$$

$$g \circ f(n) = l \cdot g_r^{q^n} = l \cdot g_r^{r^n} \rightarrow r^n$$

$$n^r \leq r^n \rightarrow n^r - r^n \leq 0$$

$$n > 0, n \in (0, r]$$

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

$$f\left(n - \frac{r}{n}\right) = n^r + \frac{\varepsilon}{n^r} - \frac{r}{n} + n - \frac{r}{n} \rightarrow f(t) = t^r + t$$

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

$$f(n) = \log_r^n \quad g(n) = \Lambda n - n^r$$

$$f \circ g(n) = (\log_r)^{-n^r + \Lambda n} \rightarrow D_{f \circ g(n)} \Rightarrow n \in D_g, g(n) \in D_f$$

$$D_{f \circ g(n)} \Rightarrow (0, \Lambda) \quad R_{f \circ g(n)} \Rightarrow \mathbb{R}$$

$$A \cap B = (0, \Lambda)$$

$$f \circ f(n) = 1 - r^r f^r(n) \quad g(n) = n - 1 \quad h(n) = n^r + rn + 1$$

$$h(g(n)) = f(n)$$

$$(n-1)^r + r(n-1) + 1 = n^r - r n^r + \omega n - r$$

$$f(f(n)) = 1 - r^r f^r(n) \rightarrow f(n) = 1 - r n^r$$

$$n^r - r n^r + \omega n - r = 1 - r n^r \rightarrow n^r + \omega n - r = 0$$

$$n^r - r n^r = -\omega n$$

$$f(n) = n - \frac{r}{n} \quad g \circ f(n) = a n^r + r n \quad g(n) = \Lambda \quad a = ?$$

$$g\left(n - \frac{r}{n}\right) = a n^r + r n$$

$$n - \frac{r}{n} = r \rightarrow n^r - r n - \varepsilon = 0$$

$$(n - r)(n + 1) = 0$$

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

$$n = r \rightarrow 4ra + \Lambda = \Lambda \rightarrow a = 0$$