

$$r_n = t \Rightarrow n = \frac{t}{r}$$

(7)

$$g(t) = \frac{\omega t^r}{\varepsilon} + 11$$

(1)

$$\min_{g(n-v)} = \min_{g(n)}$$

$$= 11 \quad \checkmark$$

(8)

$$\log(n) = r g(n) - \varepsilon = r n^r - 4n - 1$$

$$g(n) = n^r - 4n + 1 = (n-1)^r$$

$$gof(n) = (r n^r - \varepsilon - 1)^r =$$

$$a n^r - 4 n + 10$$

$$g(n) = a n + b$$

$$f(n) = c n + d$$

$$r a n + r b = r c n + r d - 1 \varepsilon$$

(9)

$$r a = r c$$

$$r b = r d - 1 \varepsilon \rightarrow r b - r d = -1 \varepsilon$$

$$(f-g)(n) = c n + d - a n - b = -n + \alpha$$

$$(c-a)n + d-b = -n + \alpha$$

$$\Rightarrow c-a = -1 \quad d-b = \alpha$$

$$r a = r(a-1) \Rightarrow a = r \Rightarrow c = r$$

$$\Rightarrow \begin{cases} r b - r d = -1 \varepsilon \\ r d - r b = 10 \end{cases} \Rightarrow d = 1 \quad b = 2 - 1$$

$$f \circ g(n) = r(r n - 1) + r = 4n + 1 \quad \checkmark$$

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

نص المسألة

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$$D_{gof} = \{n \in D_f \mid f(n) \in D_g\}$$

(2)

$$n-1 > 0 \Rightarrow n > 1 \quad \log_r^{n-1} > 0$$

$$= D_f = [r, \infty) \cap$$

$$\Rightarrow n > r$$

$$-2r \leq n - \varepsilon > 0$$

$$(n-r)^r \leq 0 \Rightarrow n = r$$

$$D_g = \{r\}$$

$$\sqrt{\log_r^{n-1}} = r \Rightarrow \log_r^{n-1} = r^2$$

$$\Rightarrow n = 14 \quad \text{II}$$

$$D_{gof} = I \cap \text{II} = \{14\}$$

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(2)

$$f \circ g(n) = r n^r - 4n + 10 - \alpha$$

$$= r n^r - 4n + 11$$

$$gof(n) = (r n - \alpha)^r - r(r n - \alpha) + 11$$

$$= \varepsilon n^r - 4 n + 10 + 11$$

$$= \varepsilon n^r - 4 n + \varepsilon 11$$

$$\text{نقطة} \quad r n^r - 4 n + 11 = \varepsilon n^r - 4 n + \varepsilon 11$$

$$r n^r - 4 n + 11 = 0$$

$$\alpha^r + \beta^r = (\alpha + \beta)^r - r \alpha \beta$$

$$= 100 - r \frac{r^2}{r} = \frac{r^3}{4r}$$

$$r n^r - 4 n + 11$$

$$5^r - 4r = 100 - 4r = 4r$$

برای کتب و ...

$$f(14) = \log_r^{17} = 2$$

$$\Rightarrow R_{f, g} = (-\infty, 2]$$

(4)

$$A \cap B = (0, 1) \cap (-\infty, 2] = (0, 2]$$

1, 2, 3, 4, 5 $\rightarrow$ عضو 2

(9)

$$h(g(n)) = (n-1)^r + r(n-1) + 1$$

$$= n^r - r n^{r-1} + n - 1 + r n - r + 1$$

$$= n^r - r n^{r-1} + n - r$$

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

(2)

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

$$n^r - r n^{r-1} + n - r = 1 - r n^r$$

$$n^r - r n^{r-1} + n - r = 0$$

$$1) \frac{1}{n} \left(\frac{1}{n} \right) = \frac{1}{n^2}$$

(10)

$$f(n) = n - \frac{1}{n} = 0$$

(1)

$$\Rightarrow n = -1 \leq x \leq 2$$

$$\Rightarrow g \circ f(-1) = -a - r = 1$$

$$\Rightarrow a = -1$$

$$g \circ f(x) = 4x + 1 = 1$$

$$[a, \dots]$$

(7)

$$f \circ g(n) = q^{\log_r n}$$

$$= n^r$$

$$D_{f, g}(n) = (0, \infty) \cap R = (0, \infty) \cap \mathbb{I}$$

$$g \circ f(n) = \log_r^q n = r n$$

$$D_{g \circ f}(n) = R \cap \mathbb{I}$$

$$n^r \leq r n$$

$$n(n-r) \leq 0$$

$$\Rightarrow 0 \leq n \leq r \quad \text{III}$$

$$\text{I} \cap \text{II} \cap \text{III} = (0, r]$$

$$1, 2 \rightarrow 1, 2$$

(2) (✓)

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

$$f(n) = n^r + n$$

(5)

$$D_{g(n)} = R \cap \mathbb{I}$$

can

$$m - n^r > 0$$

$$n(1-n) > 0$$

$$\Rightarrow 0 < n < 1 \quad \text{II}$$

$$D_{f \circ g}(n) = \mathbb{I} \cap \text{II} = (0, 1)$$

$$R_{f, g}(n) = (-\infty, 14]$$

$$R_{g(n)} = (-\infty, 14]$$