

عرفان حقیقی یازدهم ریاضی دسر A

$$f\left(f\left(\frac{r}{\sqrt{3}}\right)\right) \Rightarrow f\left(\frac{r}{\sqrt{3}}\right) \Rightarrow \cot \frac{\pi}{6} \Rightarrow \sqrt{3}$$

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$$f(\sqrt{3}) \Rightarrow \sqrt{4} \Rightarrow \boxed{2}$$

$$f\left(g\left(\frac{\pi}{\sqrt{2}}\right)\right) \Rightarrow g\left(\frac{\pi}{\sqrt{2}}\right) \Rightarrow r \cos^2 \frac{\pi}{\sqrt{2}} \Rightarrow \frac{1}{\sqrt{2}}$$

(الف)

$$f(2) \Rightarrow \sqrt{\frac{r}{2}} \Rightarrow \frac{\sqrt{3}}{2}$$

$$f(g(\sqrt{2})) \Rightarrow g(\sqrt{2}) \Rightarrow \frac{\sqrt{2}}{1-\sqrt{2}}$$

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$$\bullet f\left(\frac{\sqrt{2}}{1-\sqrt{2}}\right) \Rightarrow -\sqrt{2} < \frac{\sqrt{2}}{1-\sqrt{2}} < \sqrt{2} \Rightarrow f\left(\frac{\sqrt{2}}{1-\sqrt{2}}\right) = -\sqrt{2}$$

$$g\left(f\left(\frac{\pi}{2}\right)\right) \Rightarrow f\left(\frac{\pi}{2}\right) \Rightarrow \sin \frac{\pi}{2} = \frac{\sqrt{2}}{2}$$

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$$g\left(\frac{\sqrt{2}}{2}\right) \Rightarrow \frac{\sqrt{2}}{2} \sqrt{\frac{1}{2}} \Rightarrow \frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{2}} = \boxed{\frac{1}{2}}$$

$$\text{الف) } f \circ g(n) \Rightarrow \{(r, \omega) (4, 1r) (1, 1r) (r, \omega)\} \quad (r)$$

$$\text{ب) } g \circ f(n) \Rightarrow \emptyset$$

$$\text{ج) } f \circ f(n) \Rightarrow \emptyset$$

$$\text{د) } g \circ g(n) \Rightarrow \{(r, 1) (r, 4) (4, 1)\}$$

$$f \circ g \Rightarrow \{(1, 1) (r, v) (a, r) (b, v)\} \quad (w)$$

$$(r, r) \Rightarrow a = r$$

$$g \circ f \Rightarrow \{(r, r) (r, 1)\} \Rightarrow r \rightarrow \underbrace{\omega}_b \rightarrow 1$$

$$\boxed{b = \omega}$$

$$(a, b) \Rightarrow (r, \omega)$$

$$f(f(n)) \Rightarrow a(an+b)+b \quad (s)$$

$$f \circ f(n) = a^r n + ab + b$$

$$f \circ f(n) = r n + r$$

$$a^r = r \Rightarrow a = r$$

$$ab + b = r, b = 1$$

$$f(n) = r n + 1 \quad g(f(-1)) \Rightarrow -1$$

$$f(-1) = -1, g(-1) = -1$$

$$\S \quad n + |n| \geq 0 \Rightarrow |n| \geq -n \Rightarrow \text{همواره برقرار} \quad (V)$$

$$D_f = \mathbb{R} \quad n^r - rn \neq 0 \Rightarrow n(n-r) \neq 0 \Rightarrow n \neq r$$

$$D_g = \mathbb{R} - \{r\} \Rightarrow \sqrt{n+|n|} \neq 0, r \Rightarrow n \neq \underbrace{(-\infty, 0)}_{\wedge}$$

$$D_{g \circ f} = (r, +\infty) - \{1\}$$

$$D_f = 1 - n^r \geq 0 \Rightarrow 1 \geq n^r \Rightarrow -1 \leq n \leq 1 \quad \wedge$$

$$D(f+g) \Rightarrow \sqrt{1-n^r} + \sqrt{n} \Rightarrow 0 \leq n \leq 1$$

$$\Rightarrow 0 \leq \sqrt{1-n^r} \leq 1 \Rightarrow 0 \leq 1-n^r \leq 1$$

$$0 \leq n^r \leq 1 \Rightarrow -1 \leq n \leq 1 \Rightarrow D_{(f+g) \circ f} = [-1, 1]$$

$$\frac{r(n+1)}{n-r} = t \Rightarrow n = \frac{-r+1}{-t+r} \quad (9)$$

$$f(t) \Rightarrow r \left(\frac{-r+1}{-t+r} \right) + a \Rightarrow f(n) = \frac{-1+r}{-t+r} + a$$

$$\rightarrow) n + \frac{1}{n} = t \Rightarrow \left(n + \frac{1}{n}\right)^{\mu} = n^{\mu} + \mu n^{\mu-1} \frac{1}{n} + \mu n \frac{1}{n^{\mu}} + \frac{1}{n^{\mu}}$$

$$= n^{\mu} + \mu n^{\mu-1} + \mu \frac{1}{n^{\mu-1}} + \frac{1}{n^{\mu}} \Rightarrow \left(n^{\mu} + \frac{1}{n^{\mu}}\right)^{\mu} = \left(n + \frac{1}{n}\right)^{\mu} - \mu \left(n + \frac{1}{n}\right)^{\mu-1}$$

$$f(t) = t^{\mu} - \mu t \Rightarrow f(n) = n^{\mu} - \mu n$$

$$\left. \begin{array}{l} n\sqrt{n} = 1 \Rightarrow n = 1 \\ n\sqrt{n} = 2\sqrt{2} \Rightarrow n = 2 \end{array} \right\} g(\underbrace{f(n)}_{\sqrt{n}}) = 0 \quad (1.)$$

$$\boxed{2-1=1}$$