

$$\sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + 1} = 2 \Rightarrow f\left(f\left(\frac{1}{\sqrt{2}}\right)\right) = 2$$

مسألة 1

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

$$\frac{\sqrt{2} \cdot (1 - \sqrt{2})}{-1} = \sqrt{2} - 2 \xrightarrow{f(\sqrt{2}-2)} [-\sqrt{2}-2] = (-\sqrt{2})$$

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

$$\begin{aligned} 1) & \begin{aligned} f &\rightarrow y \rightarrow \omega \\ 2 &\rightarrow 6 \rightarrow \omega \\ y &\rightarrow 1 \rightarrow 2 \\ 1 &\rightarrow 10 \rightarrow 2 \end{aligned} \quad \} \rightarrow \{(f, \omega), (2, \omega), (y, 2), (1, 10)\} \end{aligned}$$

$$\begin{aligned} \Rightarrow & \begin{aligned} f &\rightarrow \omega \rightarrow \emptyset \\ y &\rightarrow \omega \rightarrow \emptyset \\ 1 &\rightarrow 10 \rightarrow \emptyset \\ 10 &\rightarrow 10 \rightarrow \emptyset \end{aligned} \quad \} \rightarrow \emptyset \end{aligned}$$

$$\begin{aligned} 2) & \begin{aligned} f &\rightarrow \omega \rightarrow \emptyset & y &\rightarrow \omega \rightarrow \emptyset \\ 1 &\rightarrow 10 \rightarrow \emptyset & 10 &\rightarrow 10 \rightarrow \emptyset \end{aligned} \quad \} \rightarrow \emptyset \end{aligned}$$

$$\begin{aligned} 3) & \begin{aligned} f &\rightarrow y \rightarrow 1 \\ 2 &\rightarrow 2 \rightarrow y \\ y &\rightarrow 1 \rightarrow 10 \\ 1 &\rightarrow 10 \rightarrow \emptyset \end{aligned} \quad \} \rightarrow \{(f, 1), (2, y), (y, 10)\} \end{aligned}$$

$$\begin{cases} a = r \\ b = 0 \end{cases} \rightarrow (\varepsilon < \omega)$$

$$a = \pm r \begin{cases} \rightarrow b = r \Rightarrow b = 1 \Rightarrow r_{n+1} \\ \rightarrow -b = r \Rightarrow b = -r \Rightarrow -n - r \end{cases}$$

$$r \cdot c = r \Rightarrow c = \frac{r}{r} \Rightarrow \frac{r}{r} + d = -r \Rightarrow d = -\frac{1}{r}$$

$$\Rightarrow \frac{r}{r}(-1) - \frac{1}{r} = -\frac{1}{r}$$

$$\frac{r}{r}(-r) - \frac{1}{r} = -\frac{1}{r}$$

$$n \begin{cases} > 0 \\ < 0 \end{cases} \quad n + |n| = 0 \Rightarrow \mathbb{R}^- \cup \{0\}$$

$$\Rightarrow \mathbb{R} - \left\{ \mathbb{R}^-, \{0\} \cup \mathbb{R}^+ \right\}$$

$$\sqrt{1 - \sqrt{1 - n^2}} + \sqrt{\sqrt{1 - n^2}}, \quad -1 \leq n \leq 1$$

$$\sqrt{1 - n^2} < 1 \Rightarrow n^2 > 0 \Rightarrow [-1, 1]$$

$$n = \frac{r(t-1)}{t-r} \Rightarrow \sqrt{\frac{r(t-1)}{t-r}} \Rightarrow f(n) = \frac{1}{r} \frac{r(t-1)}{t-r}$$

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

$$f(n) = 1 \Rightarrow n = 1$$

$$f(n) = r\sqrt{r} \Rightarrow n = r \quad \rightarrow |r-1| = 1$$