





$$f(a) \rightarrow a+b \rightarrow f(f(a)) = f(a+b) = a(ab)+b = a^2n+ab+b = a^2n+ab(b(a)) = a^2n+ab^2$$

$$\rightarrow a^2 = 1 \rightarrow a = \pm 1 \rightarrow b(a+1) = 1 \rightarrow a = 1 \rightarrow b = 1$$

$$\rightarrow a = -1 \rightarrow b = -1$$

$$f(-1) \rightarrow -1 \times 1 + 1 = -1 + 1 = 0 \rightarrow 1 \times 1 + 1 = 2 \rightarrow 1 \times 1 = 1 \rightarrow 1 \times 1 = 1$$

$$\rightarrow -1 \times -1 - 1 = 1 - 1 = 0 \rightarrow 1 \times -1 - 1 = -2 \rightarrow -1 \times -1 = 1$$

$$\rightarrow -1 \times -1 - 1 = 1 - 1 = 0 \rightarrow 1 \times -1 - 1 = -2 \rightarrow -1 \times -1 = 1$$

$$\rightarrow \{-1, 1\}$$

$$f \circ f(n) \rightarrow D_{f \circ f} = \{n \in D_f \cap f(n) \in D_f\}$$

$$f(n) = \sqrt{n+1} \rightarrow n \geq 0 \rightarrow f(n) \geq 0$$

$$\rightarrow n < 0 \rightarrow f(n) < 0$$

$$\rightarrow n > 0 \rightarrow f(n) = \sqrt{n}$$

$$D_f = \mathbb{R}$$

$$D_{f \circ f} = \{n \in \mathbb{R} \cap \sqrt{n+1} \in \mathbb{R} - \{0\}\}$$

$$D_{f \circ f} = \mathbb{R} - \{0, -1\}$$

$$g(n) = \frac{1}{n-1} \rightarrow n \neq 1$$

$$n(n-1) \neq 0 \rightarrow n \neq 0, 1$$

$$D_g = \mathbb{R} - \{0, 1\}$$

$$D_g = n > 0$$

$$D_f = n < 1 \rightarrow |n| < 1$$

$$D_{(f+g)} = \{n \in D_f \cap f(n) \in D_{(f+g)}\} = \{n \in \mathbb{R} \cap 0 < \sqrt{1-n} < 1\}$$

$$0 < \sqrt{1-n} < 1 \rightarrow 0 < 1-n < 1 \rightarrow -1 < -n < 0 \rightarrow 0 < n < 1$$

$$f\left(\frac{1}{n}\right) = \frac{1}{n+1} \rightarrow \frac{1}{n+1} = \frac{1}{n} \rightarrow n+1 = n \rightarrow 1 = 0$$

$$\rightarrow n(1-b) = -(1+b) \rightarrow n = \frac{1+b}{1-b} \rightarrow \frac{1}{n} = \frac{1-b}{1+b} \rightarrow f(b) = f(n) = \frac{1}{n+1} = \frac{1-b}{1+b}$$

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$$g(n) \rightarrow f(n) = 1 \rightarrow f(n) = 1$$

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