

$$n > 1 \rightarrow \sqrt{2n-1-n+1} \rightarrow n > 1 \rightarrow n > 1$$

$$n < 1 \rightarrow \sqrt{2n+3-n+1} \rightarrow 2n+4 > 0 \rightarrow n > -\frac{4}{2} \sim -\frac{4}{2} \leq n < 1$$

$$D_g : [-\frac{4}{2}, +\infty)$$

✓

$$y = \frac{2fn^3 + 2fn^2 + 1n + 3}{(fn^2 + 2n + 1)^2} = \frac{2(1n^3 + 12n^2 + 2n + 1)}{((2n+1)^2)^2} = \frac{2(2n+1)^3}{(2n+1)^4} = \frac{2}{(2n+1)}$$

$$\Rightarrow D_f : \mathbb{R} - \{-\frac{1}{2}\}$$

✓

$$\frac{n^2 + 2n^2 - n - 2}{n^2 - 1} = \frac{n(n^2 - 1) + 2(n^2 - 1)}{n^2 - 1} = \frac{(n^2 - 1)(n + 2)}{(n^2 - 1)} = n + 2$$

$$c = 2$$

$$\begin{aligned} n = 1 &\rightarrow g(n) = f(n) \rightarrow 1 + 2 = \frac{a+2}{1+b} \rightarrow \begin{cases} 3+2b = a+2 \\ -1+b = -a+2 \end{cases} \\ n = -1 &\rightarrow g(n) = f(n) \rightarrow -1+2 = \frac{-a+2}{-1+b} \rightarrow \begin{cases} 1+b = -a+2 \\ -1+b = -a+2 \end{cases} \end{aligned}$$

$$b + c = \frac{1}{2} + 2 = \frac{5}{2} = 2.5$$

$$\begin{aligned} 2+2b &= 3 \\ 2b &= 1 \rightarrow b = \frac{1}{2} \end{aligned}$$

✓

$$\frac{(n-1)(n+1)}{n^2 + an + b} = \frac{n+1}{n-c} \Rightarrow (n-c)(n-1) = n^2 + an + b$$

$$n^2 - (1+c)n + c = n^2 + an + b$$

$$a + b + c = -2 + 1 + 1 = 0$$

$$a = -1 - c \rightarrow a = -1 - 1 = -2$$

$$b = c \rightarrow c = 1$$

✓

$$g(n) = (n-2)^2 n + (-n-2)^2 - n = n((n-2)^2 - (-n-2)^2) \Rightarrow$$

$$g(n) = n(n^2 - 4n + 4 - (n^2 + 4n + 4)) \Rightarrow g(n) = n(-8n) \Rightarrow$$

$$g(n) = -8n^2$$

✓

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

$$f(-1) = \sqrt[n]{-1} = \sqrt[n]{-1}$$

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

$$f(r) = \sqrt[n]{-1} + r = -1 + r = 1$$

$$f(-1) + f(r) = \sqrt[n]{-1} + 1 = 0$$

$$n + \sqrt{n} = 4 \rightarrow n + \sqrt{n} - 4 = 0 \rightarrow t^2 + t - 4 = 0 \rightarrow (t+2)(t-2) = 0$$

$$t = -2, t = 2$$

$$\sqrt{n} = 2, \sqrt{n} = -2 \times$$

$$f(4) = \sqrt[n]{4} + 1 = f(4) = 2 + 1 = 3$$

$$f(n-1) = (n-1)^n + n - 1 \rightarrow n^n - rn^n + rn - 1 + n - 1 = n^n - rn^n + rn - 2$$

$$f(1-n) = (1-n)^n + 1 - n \rightarrow 1 - rn + rn^n - n^n + 1 - n = -n^n + rn^n - rn + 2$$

$$f(n-1) + f(1-n) = n^n - rn^n + rn - 2 - n^n + rn^n - rn + 2 = 0$$

$$f(1) = \sqrt[n]{a-r} + k - 1$$

$$g(1) = \sqrt[n]{b-r} + rk$$

$$\rightarrow f-g = \sqrt[n]{a-r} + rk - 1 - \sqrt[n]{b-r} - rk = k$$

$$\sqrt[n]{a-r} - \sqrt[n]{b-r} - k - 1 = k$$

$$\sqrt[n]{a-r} - \sqrt[n]{b-r} - k - 1 = k$$

$$a-r \geq 0 \rightarrow n \geq \frac{r}{r}$$

$$b-r \geq 0 \rightarrow n \leq \frac{b}{r}$$

$$\Rightarrow \frac{r}{r} = 1 \Rightarrow a = \frac{r}{r} \quad \sqrt[n]{a-r} - \sqrt[n]{b-r} - k = 0$$

$$b = r$$

$$\sqrt[n]{a-r} - \sqrt[n]{b-r} - k = 0$$

$$g(n) = \sqrt[n]{n+r} \rightarrow n+r \geq 0 \rightarrow n \geq -r \rightarrow n \geq -1$$

$$f(n) = \sqrt[n]{m-n} + n \rightarrow m-n \geq 0 \rightarrow n \leq m \rightarrow m = \sqrt[n]{m-n} + n$$

$$f-g(r) = r+n - (\sqrt[n]{r}) = r+n - \sqrt[n]{r} \rightarrow r+n - \sqrt[n]{r} = r+n - \sqrt[n]{r} \rightarrow r+n = \sqrt[n]{r} + n$$

$$m+n = \sqrt[n]{r} + n + r = \sqrt[n]{r} + 1$$