

Übersicht

$$f(x) = \left(\frac{1}{e}\right)^{n-x} = \left(\frac{1}{e}\right)^n e^{x-n} = \frac{1}{e^n} e^{x-n}$$

$$x^n f(x) \leq x^n \left(\frac{1}{e}\right)^{n-x} = \left(\frac{x}{e}\right)^n e^x$$

$$x^{n-1} \leq e \rightarrow x=1$$

$$x^{n-1} = 1 \rightarrow 1-x=0$$

$$\frac{1}{e} \leq \frac{1}{e} \quad D_f = [0, 1]$$

$$f(x) = \sqrt{-x+1} \quad D_{f(-x)} = ?$$

$$f(-x) = \sqrt{-x+1} \geq 0$$

$$x - |x-1| \leq 0 \quad x \leq |x-1|$$

$$x^n \leq (x-1)^n \rightarrow x^n \leq x^n - \varepsilon x + \varepsilon \rightarrow x \leq 1$$

$$D_{f(-x)} = (-\infty, 1]$$

$$g = \sqrt{\frac{x-1}{f(x)}}$$

$$x-1 \leq 0 \rightarrow x \leq 1$$

$$f(x) \leq \frac{-a - \varepsilon}{x+b} \leq \frac{a}{x-b} \leq \frac{c}{x-b}$$

$$D_g = (-\varepsilon, 1] \cup (1, c)$$

$$\frac{x-1}{f(x)} \rightarrow \frac{-a - \varepsilon}{x+b} \leq \frac{a}{x-b} \leq \frac{c}{x-b}$$

$$y \leq \frac{1}{an\varepsilon - xn^c - \varepsilon n - c}$$

$$y \leq \frac{1}{e x^c + a n + b}$$

$$x^n \left( x^n - \frac{1}{e} - \frac{\varepsilon}{e x} - \frac{1}{n^c} \right)$$

$$-\frac{\varepsilon}{n^c} = a n \rightarrow a = -\frac{\varepsilon}{n^c}$$

$$-\frac{1}{n} - \frac{1}{n^c} \leq b$$

$$f(n) = n^2 \ln n$$

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?

$$g = \sqrt{f(n) - f\left(\frac{n}{2}\right)} \geq 0 \rightarrow f(n) \geq f\left(\frac{n}{2}\right)$$

$$n^2 \ln n \geq \left(\frac{n}{2}\right)^2 \ln \frac{n}{2} + \frac{n}{2} \rightarrow n^2 \ln n - \frac{n}{2} = \frac{n^2 \ln n - n}{n} \geq \frac{n^2}{2}$$

$$n^2 (n^2 \ln n - \frac{n}{2}) \geq \frac{n^2}{2}$$

$$f(n) = n^2 \ln n$$

$$f(n) = f(n) = 1$$

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

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

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$$f(n) = \frac{n^2 - 4n + 1}{(n-2)^2} + 1 = (n-2)^2 + 1$$

$$g(n) = \frac{n^2 - 4n + 1}{(n+2)^2} + 1 = (n+2)^2 - 2$$

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

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$$f(n) = \sqrt{n+2} \sqrt{n-2}$$

$$g(n) = \sqrt{n-2} \sqrt{n-2}$$

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$$f(n) + g(n) = n + \sqrt{n+2}$$

$$(f(n) + g(n))^2 = f(n)^2 + g(n)^2 + 2f(n)g(n) = n + 2\sqrt{n+2} + n - 2\sqrt{n-2}$$

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

$$n^2 - 4(n-2) = n^2 - 4n + 8$$

$$(n-2)^2$$

$$1 \leq n \rightarrow (f(n) + g(n)) = 2n - 1 \rightarrow f(n) + g(n) = \sqrt{2(n-1)}$$

$$\sqrt{n-2} \rightarrow a+b=c \quad c=-2 \rightarrow \frac{a+b}{c} = \frac{c}{-2} = -\frac{1}{2}$$

$$a = \sqrt{n-2} - 2 + 2 = a - 2 + 2\sqrt{n-2} + 2 \rightarrow \sqrt{n-2} = 2 - 2 + 2\sqrt{n-2} + 2 \rightarrow \sqrt{n-2} = 2$$

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

$$g(n) = \sqrt{(n-1)}, (1,0), (0,2), (1,1)$$

$$DE = 12 - 4 \times 1 \frac{1}{2}$$

$$\text{Jawab } \frac{g}{p} = \left\{ (0, \frac{2}{c}), (1, \frac{1}{-2}) \right\}$$

$$n \pm 1 \rightarrow \frac{g}{p}$$

$$\frac{g}{p} = \left\{ (0, 2), (1, -\frac{1}{2}) \right\}$$

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$$g(n) = \left\{ (-2, 1), (1, -1), (2, 2), (-1, 0) \right\}$$

$$f(n) = \left\{ (2, 2), (1, 2), (2, -1), (-1, 2) \right\}$$

$$f(n) = \left\{ (2, 2), (1, 2), (2, -1), (-1, 2) \right\}$$

$$f(n) = \left\{ (2, 2), (1, 2), (2, -1) \right\}$$

$$f(n) + g(n) = \left\{ (-2, 1), (1, 0), (2, 2), (-1, 1) \right\}$$

$$\frac{f}{g} = \left\{ (1, -1), (2, -2), (-1, 1) \right\}$$