

۱۲۷۵

پاسخنامه تشریحی تکلیف شماره ... کلاس ...

نام و نام خانوادگی ...

$$f(x) = \left(\frac{1}{x}\right)^{n-2} - 1$$

$$D_f \rightarrow y = \sqrt{x} f(n+1)$$

$$f(n+1) = \left(\frac{1}{x}\right)^{(n+1)-2} - 1 = \frac{1}{x}^{n-1} - 1 = \frac{1}{x} \times x - 1$$

$$y = \sqrt{x} \times \frac{1}{x} \times x - 1$$

$$f(x) > 0 \Rightarrow x^{\frac{1}{n-1}} > 1 \Rightarrow n > 0 \Rightarrow D_f \in [0, 1]$$

$$\left(\frac{1}{x}\right)^{n-1} - 1 = 0 \rightarrow n = 1$$

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

$$n > 2 \Rightarrow \sqrt{-n+n-2} = \sqrt{-2}$$

$$-2n+2 > 0 \Rightarrow 2 > 2n \Rightarrow 1 > n \Rightarrow D_f = (-\infty, 1]$$

$$\frac{1}{x} \geq 1 \Rightarrow x \leq 1$$

$$\Rightarrow D_f = (-\infty, 1] \cup (1, \infty)$$

$$\frac{1}{n^2} - \sqrt{n^2 - n - 2} \neq 0 \Rightarrow n^2 - (n^2 + n + 2) \neq 0$$

$$\Delta = 14 - 16 = -2 < 0$$

$$n^2 - n - 2 = (n-2)(n+1) \Rightarrow a = -1, b = -2 \Rightarrow \sqrt{-(-1)} = 1$$

$$f(n) - f\left(\frac{1}{n}\right) > 0 \Rightarrow \frac{n^2+n}{n^2+n} > \frac{1}{n^2+n} \Rightarrow (n^2+n)^2 > 1 \Rightarrow \sqrt{(n^2+n)^2} > 1$$

$$|n^2+n| > 1 \Rightarrow n^2+n > 1, n^2+n < -1 \Rightarrow n^2+n+2 \leq 0 \Rightarrow [-2, -1]$$

$$\Rightarrow n^2+n-2 > 0 \Rightarrow [1, +\infty)$$

$$D_f = [1, +\infty) \cup (-2, 0) \cup (1, +\infty)$$

$$x^2 + x = 1 \Rightarrow x \leq 1 \Rightarrow x(1)^2 - 1 \leq 1 = f(1)$$

$$x^2 + x = 1 \Rightarrow x = 1 \Rightarrow x(1)^2 - 1 \leq 1 = f(1)$$

$$1 + 1 \leq 1 \quad \checkmark$$

$$f(x) = (x-1)^2 + 1 \Rightarrow f(\sqrt{1-x}) = (\sqrt{1-x}-1)^2 + 1 = 1$$

$$g(x) = (x+1)^2 - 2 \Rightarrow g(\sqrt{1-x}) = (\sqrt{1-x}+1)^2 - 2 = -2$$

$$\frac{-2}{1} = -2 \quad \checkmark$$

$$f(x) = \sqrt{x+1} \sqrt{x-1} = \sqrt{x-1+1} \sqrt{x-1+1} = \sqrt{x-1+2} = \sqrt{x+1}$$

$$g(x) = \sqrt{x-1-1} \sqrt{x-1+1} = |\sqrt{x-1-2}| = \sqrt{x-3}$$

$$\sqrt{x-1+2} + |\sqrt{x-1-2}|$$

$$a \leq b \leq c \quad c = -1 \quad \frac{a+c}{-1} = \frac{1}{-1} \quad \checkmark$$

$$f(x) = \frac{x^2+1}{x(x-1)(x+1)} \Rightarrow D_f = \mathbb{R} - \{0, 1\}$$

$$g(x) \cap f(x) = D_g \cap D_f = (1, 0) \Rightarrow g(x) \cap f(x) = \left\{ \left(1, -\frac{1}{2}\right), \left(0, \frac{1}{2}\right) \right\}$$

$$\frac{1}{\frac{1}{2}} = 2$$

$$1) \left\{ \left(\frac{1}{2}, 2\right), \left(\frac{1}{2}, -\frac{1}{2}\right), \left(2, 2\right), \left(-\frac{1}{2}, 2\right) \right\} \quad \checkmark$$

$$2) \left\{ (1, 2), (-1, 2), (-\sqrt{2}, -1), (\sqrt{2}, -1), (2, 2), (-2, 2) \right\} \quad \checkmark$$

$$3) \left\{ (-2, 1), (1, 1), (1, 9), (-1, 1) \right\} \quad \checkmark$$

$$4) \left\{ (1, -1), (1, -1) \right\} \quad \checkmark$$