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Sudo wla

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

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

$$\sqrt{x-1} \sqrt{x+1} \pm 1 = \sqrt{(x+1) \pm 1}^2 \quad y(x)$$

$$f(x) + y(x) = \sqrt{x-1} + \sqrt{x-1} + \sqrt{x+1} - \sqrt{x+1} = 2\sqrt{x-1} \quad \begin{matrix} a=0 & c=-1 \\ b=1 & \end{matrix} \quad \frac{a+b}{a-b} = \frac{1}{-1} = -1$$

$$f(x) = \frac{x+1}{x-1-x+1} \quad y(x) = \{(1,1), (1,0), (1,\infty), (0,1)\} \quad \frac{y}{f} \quad (2)$$

$$\frac{x+1}{(x-1)(x-1)} \quad x \neq 1, x \neq 0 \quad \frac{x+1}{x-1} = \frac{x}{x-1} + \frac{1}{x-1}$$

$$x=0 \quad \frac{1}{-1} = -1 \quad \frac{x}{x-1} = \frac{1}{-1} = -1$$

$$\frac{y}{f} = \{(0,1), (1,-1)\}$$

$$f(x) = \{(1,1), (1,-1), (1,1), (-1,1)\} \quad y(x) = \{(1,1), (1,-1), (1,1), (-1,1)\} \quad (3)$$

$$a) f(x) = \{(1,1), (1,-1), (1,1), (-1,1)\}$$

$$b) f(x) = \{(1,1), (1,-1), (1,1)\} \quad \boxed{-1 \text{ is } 1}$$

$$c) y(x) + 1 = \{(-1,1), (1,1), (1,1), (-1,1)\}$$

$$d) \frac{y}{f} = \{(1,1), (1,-1)\}$$

$$f(x) = \{(1,1), (1,1), (1,1), (-1,1)\} \quad y(x) = \{(1,1), (1,1), (1,1), (-1,1)\} \quad (4)$$

$$h = yf + 1 = \{(1,1), (1,1), (-1,1)\}$$

$$f(x) = \frac{\sqrt{x^2-1} - x}{x-1} \quad y(x) = \frac{[x] + [-x]}{x-1} \quad \text{find } \left(\frac{f}{y} + 1\right) x \quad (5)$$

$$\frac{\sqrt{x^2-1} - x}{x-1} = Dp = \{0, 1, 1\} \quad \frac{x}{y} + \frac{1}{1} = \frac{x}{y} + 1 \quad \sqrt{x^2-1} \geq 0 \quad x \geq 0 \quad x \geq 0 \quad x \geq 0$$

$$f(x) = \sqrt{x^2-1} - x, \quad y(x) = \{(1,1), (1,1), (1,1), (1,1)\} \quad h = \frac{f(x)}{y(x)} \quad (6)$$

$$\sqrt{x^2-1} - x = \sqrt{(x-1)(x+1)} \quad \sqrt{(x-1)(x+1)} \quad \frac{x}{y} - \frac{1}{1} = \frac{x}{y} - 1$$

$$\frac{f(x)}{y(x)} = \{(1,0), (1,\frac{\sqrt{x}}{x}), (1,0)\}$$

$$a) yx^2 - x^2 + x^2 y(x-1)^2 + 1 \quad R_f = \mathbb{R} \quad \text{find } R_f \quad (7)$$

$$y-1 = (x-1)^2 \quad \sqrt{y-1} + 1 = x \quad R_f = \mathbb{R} \rightarrow R_f = \mathbb{R}$$

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المسألة الأولى

$$ج) y = \frac{1}{n^2 - 2n} \quad 4n^2 - 2ny = 1 \quad 4n^2 - 2n(y-1) = 6$$

$$y=0 \quad 4n^2 - 2n(0) - 1 = -1$$

$$y \neq 0 \quad \frac{b^2 - 4ac}{4a} \geq 0 \quad 4y^2 \pm \sqrt{4y^2 - 2(y-1)} \geq 0 \quad y(y+1) \geq 0 \quad \frac{y}{y+1} \geq 0 \quad \frac{y}{y+1} \geq 0$$

$$R_f = (-\infty, -1] \cup [0, +\infty)$$

النتيجة ①

$$ع) y = 4n^2 - 2n + 1 \quad \frac{-b}{2a} = \frac{1}{2} = 0.5 \quad \frac{4 - 1}{4} = 0.75 \quad [0.5, +\infty)$$

$$ج) y = -4n^2 + 4n + 3 \quad \frac{-b}{2a} = \frac{-1}{-2} = 0.5 \quad \frac{-4 + 1}{-4} = 0.75 \quad (-\infty, 0.75]$$

$$د) y = \sqrt{4n^2 - 2n - 3} \quad \frac{-b}{2a} = \frac{1}{2} = 0.5 \quad \frac{4 - 1}{4} = 0.75 \quad R_f = [0.75, +\infty)$$

$$ه) y = \sqrt{4n^2 - 2n} \quad \frac{-b}{2a} = \frac{-1}{-2} = 0.5 \quad \frac{-4 + 1}{-4} = 0.75 \quad [0, 0.75]$$

النتيجة ②

$$و) y = 4n^2 - 2n + 1 \quad R_f = \mathbb{R}$$

$$ز) y = 4n^2 - 2n + 1 \quad R_f = \mathbb{R}$$

$$ح) y = \sqrt{4n^2 - 2n + 1} \quad R_f = [0, +\infty)$$

$$ط) y = (4n^2 - 2n + 1)^2 \quad R_f = [0, +\infty)$$

النتيجة ③

$$ي) y = \frac{3n+1}{n-2} \quad R_f = \mathbb{R} - \{2\}$$

$$ج) y = \frac{2n+1}{n+1} \quad R_f = \mathbb{R} - \{1\}$$