

الف: معكوفه A دارم (فتر)

فكاره مختلفه

نام دنام فتر: زمانه

$$\begin{aligned} f(-x) - x f(x) &= 2|x| + 1 \\ -x \rightarrow f(x) + x f(-x) &= 2|x| + 1 \\ x \rightarrow (-x f(x) + f(-x)) &= 2|x| + 1 \end{aligned}$$

$$\begin{cases} f(x) + x f(-x) = 2|x| + 1 \\ x^2 f(x) - x f(-x) = -2|x| - x \end{cases} \quad (1)$$

$$\begin{aligned} f(x) + x^2 f(x) &= 2|x| + 1 - 2|x| - x \\ (1+x^2) f(x) &= 2|x| (1-x) + (1-x) \\ f(x) &= \frac{(1-x)(2|x|+1)}{(1+x^2)} \end{aligned}$$

$$\begin{aligned} f(x) + f(0) &= x^2 - 2x + 1 \\ x \rightarrow 0 \rightarrow f(0) + f(0) &= 1 \rightarrow 2f(0) = 1 \rightarrow f(0) = \frac{1}{2} \\ f(x) &= x^2 - 2x + \frac{1}{2} \\ f(x^2) &= x^4 - 2x^2 + \frac{1}{2} \end{aligned}$$

$$\begin{aligned} y &= \frac{x^2 + x + 1}{x-1} \rightarrow yx - y = x^2 + x + 1 \rightarrow x^2 - yx + x + y + 1 = 0 \rightarrow x^2 + x(1-y) + y + 1 = 0 \\ b^2 - 4ac &= (1-y)^2 - 4(y+1) = 1 - 2y + y^2 - 4y - 4 = y^2 - 6y - 3 \geq 0 \rightarrow (y-3)(y+1) \geq 0 \\ \frac{-1}{+1} & \quad \frac{3}{-1} \quad R = (-\infty, -1] \cup [3, +\infty) \end{aligned}$$

$$\begin{aligned} 1) y &= 2x^2 - 4x + 1 \quad \left| \begin{array}{l} \frac{-b}{2a} = \frac{2}{2} = 1 \\ \Delta = \frac{16}{4} = 4 \end{array} \right. \\ R &= [-\frac{1}{2}, +\infty) \end{aligned}$$

$$\begin{aligned} 2) y &= \sqrt{-x^2 + 2x - 4} \quad \left| \begin{array}{l} \frac{-b}{2a} = \frac{1}{-1} = -1 \\ \Delta = 16 \end{array} \right. \\ y &= \sqrt{(-\infty, 4]} \rightarrow R = [0, 2] \end{aligned}$$

$$3) \sqrt{x^2 - 2x^2 + 4x + 1} = \sqrt{1-x^2} \rightarrow R = [-1, 1]$$

$$\begin{aligned} 4) y &= \sqrt{x^2 - 4x^2 + 4x + 1} = \sqrt{-3x^2 + 4x + 1} \\ R &= \mathbb{R} \end{aligned}$$

$$5) y = \frac{2x+1}{x-2} \rightarrow R = \mathbb{R} - \{\frac{1}{2}\}$$

$$6) y = \sqrt{\frac{2x+1}{x-2}} = \sqrt{2} \rightarrow R = [0, +\infty) - \{\sqrt{2}\}$$

$$7) y = \frac{x^2 + 1}{\sqrt{x^2 + 1}} = \sqrt{x^2 + 1} + \frac{1}{\sqrt{x^2 + 1}}$$

$$\begin{aligned} 8) y &= x^2 + 1 + \frac{1}{x^2 + 1} - 1 \\ x=0 &\rightarrow 1 + \frac{1}{1} - 1 = 1 \\ R &= [\frac{1}{2}, +\infty) \end{aligned} \quad (2)$$

$$R = [\sqrt{2} + \frac{1}{\sqrt{2}}, +\infty)$$

$$y = \frac{x^2 + c}{x^2 - 1} = y \rightarrow x^2 = -\frac{y - c}{y + c}$$

$$\rightarrow x = \pm \sqrt{\frac{y + c}{y - c}}$$

$$R = (-\infty, -c) \cup (c, +\infty)$$

$$y = \frac{x^2 + c}{x^2 - 1} \begin{cases} \infty \rightarrow c \\ 0 \rightarrow -c \end{cases}$$

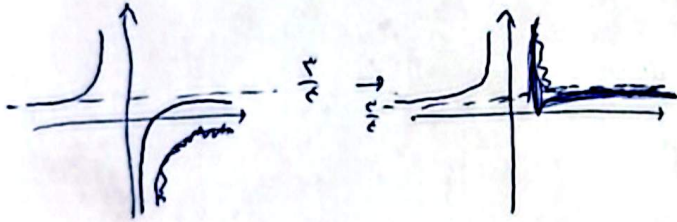
$$R = (-\infty, -c) \cup (c, +\infty)$$

$$y = \frac{x \sin x + c}{\sin x - c} \begin{cases} 1 \rightarrow -c \\ -1 \rightarrow -\frac{1}{c} \end{cases}$$

$$R = [-c, -\frac{1}{c}]$$

$$a) y = \left| \frac{x-1}{x} \right| \rightarrow \frac{x}{x}$$

$$R = [-1, +\infty)$$

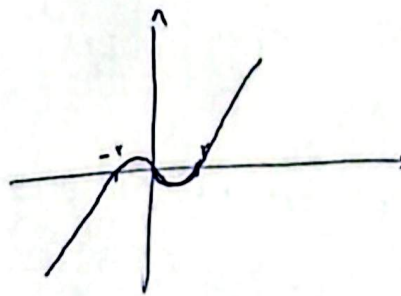


$$b) y = \sqrt{\frac{9x-1}{-1+c_2}} \rightarrow x = \frac{-c_2 \pm 1}{1y+9}$$

$$-1y-9=0 \rightarrow y = -\frac{9}{x}$$

$$R = [0, +\infty) \cup \left[\frac{9}{c}, +\infty \right)$$

$$y = x|x| - x^2 \begin{cases} x^2 - x & x \geq 0 \\ -x^2 - x & x < 0 \end{cases}$$



$$R = \mathbb{R}$$

