

$$f(x) = x + 1$$

$$g(x) = 2x - 3$$

$$f(x+1) = x + 1 + 1 = x + 2$$

$$g(x-1) = 2(x-1) - 3 = 2x - 2 - 3 = 2x - 5$$

Risolvere

$$f(g(x)) = f(x+1) - g(x-1)$$

$$f(g(x)) = f(2x-3) = 2x-3+1 = 2x-2$$



$$2x - 2 = x + 2 - (2x - 5)$$

$$2x - 2 = x + 2 - 2x + 5$$

$$3x = 9$$

$$\boxed{x = 3}$$

- 243** Date le funzioni $f(x) = \frac{x+1}{x}$ e $g(x) = x^2$:
- a) determina $h = f \circ g$;
 - b) risolvi la disequazione $h(x) \leq f(2x)$.

$$h(x) = (f \circ g)(x) = f(g(x)) = f(x^2) = \frac{x^2+1}{x^2}$$

$$h(x) \leq f(2x)$$

$$\frac{x^2+1}{x^2} \leq \frac{2x+1}{2x}$$

$$\frac{x^2+1}{x^2} - \frac{2x+1}{2x} \leq 0$$

$$\frac{2(x^2+1) - x(2x+1)}{2x^2} \leq 0$$

$$\frac{\cancel{2x^2} + 2 - \cancel{2x^2} - x}{2x^2} \leq 0$$

$$\frac{2-x}{2x^2} \leq 0$$

$x \neq 0$

$$\text{M)} \frac{2-x}{2x^2} \leq 0$$

$$\text{N)} 2-x > 0 \Rightarrow x < 2$$

$$\text{O)} 2-x > 0 \Rightarrow x < 2$$

$$\text{P)} 2x^2 > 0 \Rightarrow \forall x \neq 0$$

$$2-x \leq 0$$

$$-x \leq -2 \Rightarrow \boxed{x \geq 2}$$

	0		2	
N)	+		+	-
O)	+	X	+	+
	+	X	+	-

$$\boxed{x \geq 2}$$

$$y = \frac{x^2 - 4}{x^2 - 1}$$

DOMINIO

INT. ASSI

SEGNO

PARI O DISPARI?

DOMINIO

$$x^2 - 1 \neq 0 \Rightarrow x^2 \neq 1 \Rightarrow x \neq \pm 1$$

INT. ASSI

ASSE X

$$\begin{cases} y=0 \\ y = \frac{x^2 - 4}{x^2 - 1} \end{cases} \Rightarrow \frac{x^2 - 4}{x^2 - 1} = 0 \quad x^2 - 4 = 0 \quad x^2 = 4 \Rightarrow x = \pm 2$$

A(2, 0) B(-2, 0)

ASSE Y

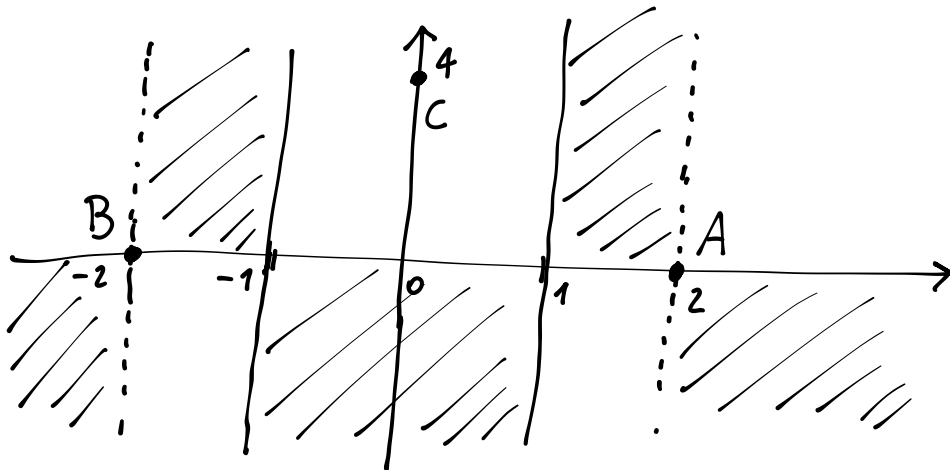
$$\begin{cases} x=0 \\ y = \frac{x^2 - 4}{x^2 - 1} \end{cases} \quad \begin{cases} x=0 \\ y=4 \end{cases} \quad C(0, 4)$$

SEGNO

$$\frac{x^2 - 4}{x^2 - 1} > 0$$

N) $x^2 - 4 > 0 \quad x < -2 \vee x > 2$
 D) $x^2 - 1 > 0 \quad x < -1 \vee x > 1$

	-2	-1	1	2	
N)	+ ○	-	-	- ○	+
D)	+	+ X	- X	+ X	+
	+ ○	- X	+ X	- ○	+



Controllare che è pari $f(-x) = \frac{(-x)^2 - 4}{(-x)^2 - 1} = \frac{x^2 - 4}{x^2 - 1} = f(x)$ È PARI