

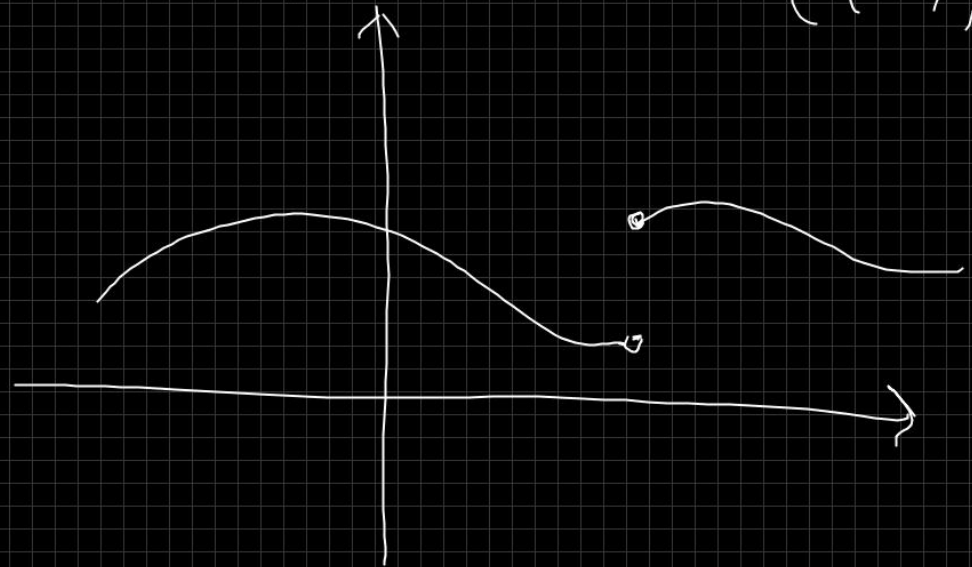
# Angewandte Intervalle

$$|x-3| = 2x + |x^2-1|$$

$$\begin{cases} x-3, & x \geq 3 \\ -(x-3), & x < 3 \end{cases}$$

$$|x^2| = x^2 \quad x \in \mathbb{R}$$

$$|x^2-1| = \begin{cases} x^2-1, & x \geq 1 \\ x^2-1, & x < -1 \\ -(x^2-1), & -1 \leq x < 1 \end{cases}$$



1.35

För vilka  $x$  är

a)  $|x-3| = 2 - |x-5|$

$$|x-3| = \begin{cases} x-3, & x \geq 3 \\ -(x-3), & x < 3 \end{cases}$$

$$|x-5| = \begin{cases} x-5, & x \geq 5 \\ -(x-5), & x < 5 \end{cases}$$

I:  $-(x-3) = 2 - (-(x-5)), \quad x < 3$

$$-x+3 = 2+x-5$$

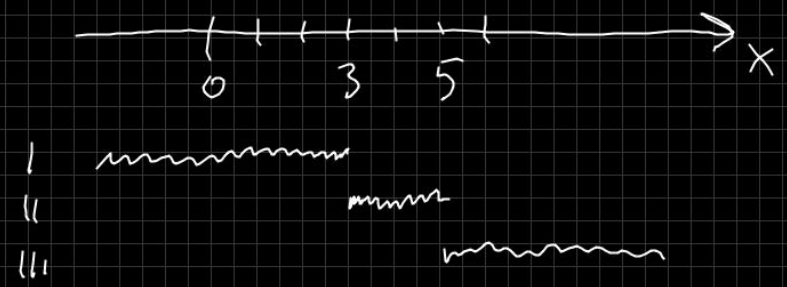
$$6 = 2x$$

$x = 3$  ej det i intervallet.

II:  $x-3 = 2 - (-(x-5)), \quad 3 \leq x < 5$

$$x-3 = 2+x-5$$

$$0 = 0 \quad \text{ok.}$$



$$\text{III} \quad x-3 = 2 - (x-5), \quad x \geq 5$$

$$x-3 = 2-x+5$$

$$2x = 10$$

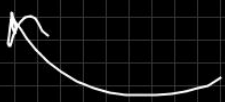
$$x = 5 \quad \text{ok.}$$

$$x = 5$$

$$3 \leq x < 5$$

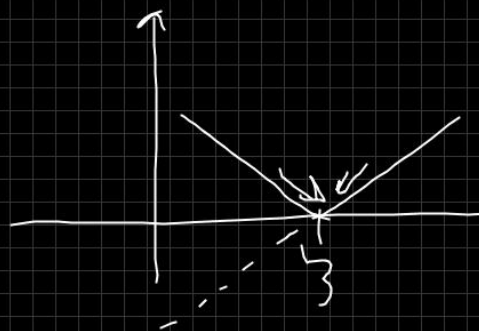
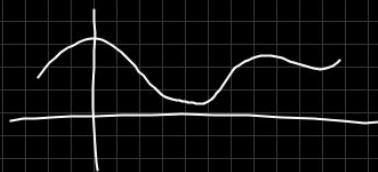
$$\underline{\text{Lösung:}} \quad 3 \leq x \leq 5$$

Derivierbar f'n



$f'(a) = \text{existiert}$ ,

$\Rightarrow$  Kontinuierl. f



$$f(x) = |x-3|$$