

# I LIMITI

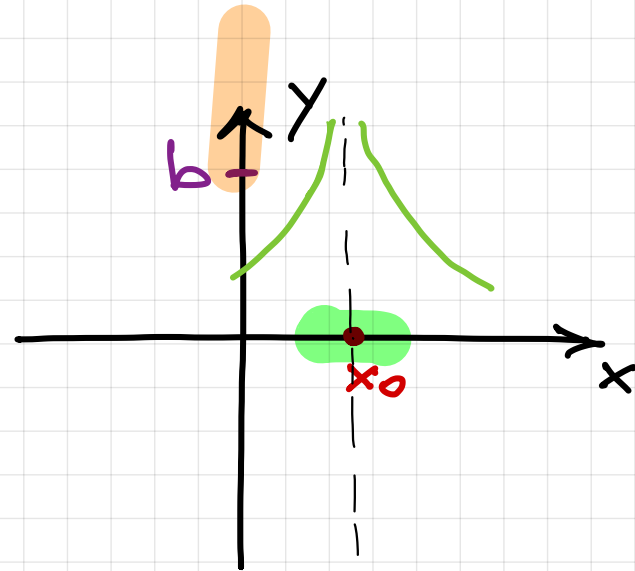
Vari casi



$$\lim_{x \rightarrow x_0} f(x) = l$$

PER OGNI INTORNO DI  $l$  ESISTE UN INTORNO DI  $x_0$  TALE CHE  
PER  $x \in I(x_0) \Rightarrow f(x) \in I(l)$

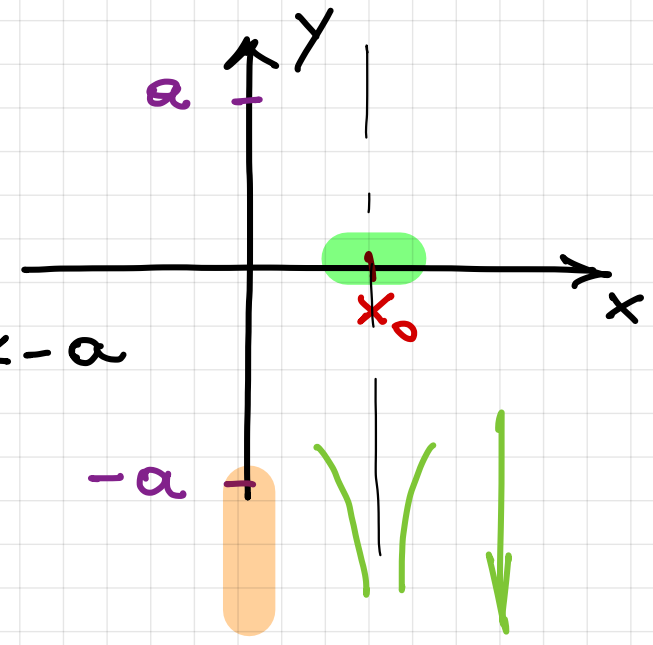
$$\bullet) \lim_{x \rightarrow x_0} f(x) = +\infty$$



$$\forall b > 0 \exists \delta > 0 \mid x \in ]x_0 - \delta; x_0 + \delta[ \Rightarrow f(x) > b$$

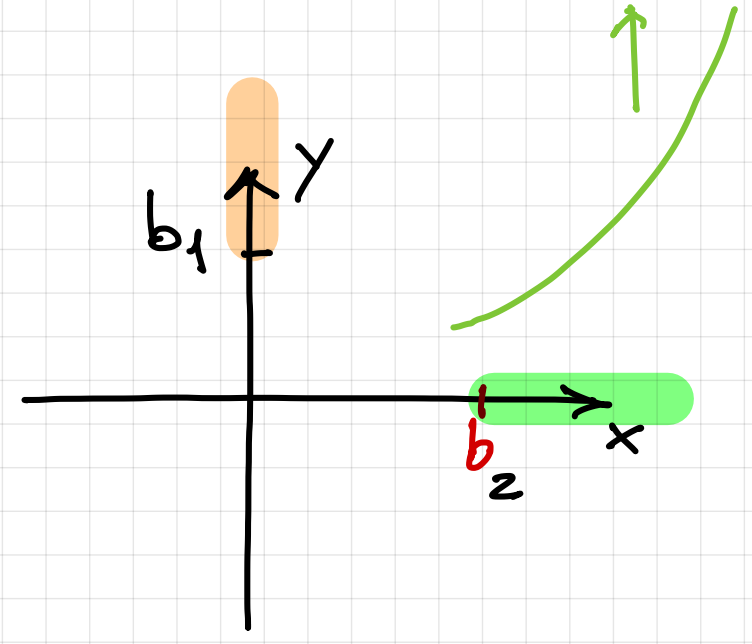
la funzione  $f(x)$  supera  $b$  man mano che mi avvicino  
a  $x_0$

•)  $\lim_{x \rightarrow x_0} f(x) = -\infty$



$\forall a > 0 \exists \delta > 0 \mid x \in ]x_0 - \delta; x_0 + \delta[ \Rightarrow f(x) < -a$

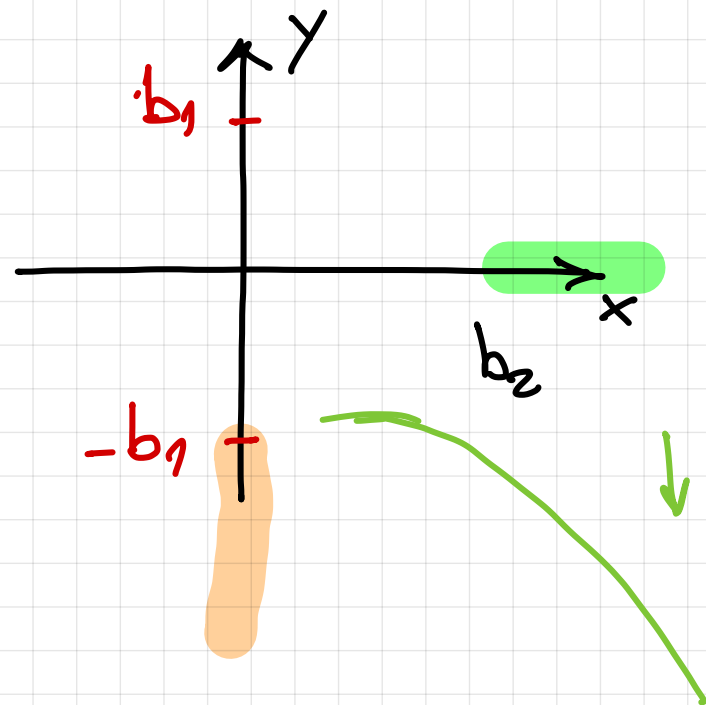
•)  $\lim_{x \rightarrow +\infty} f(x) = +\infty$



$\forall b_1 > 0 \exists b_2 > 0 \mid x > b_2 \Rightarrow f(x) > b_1$

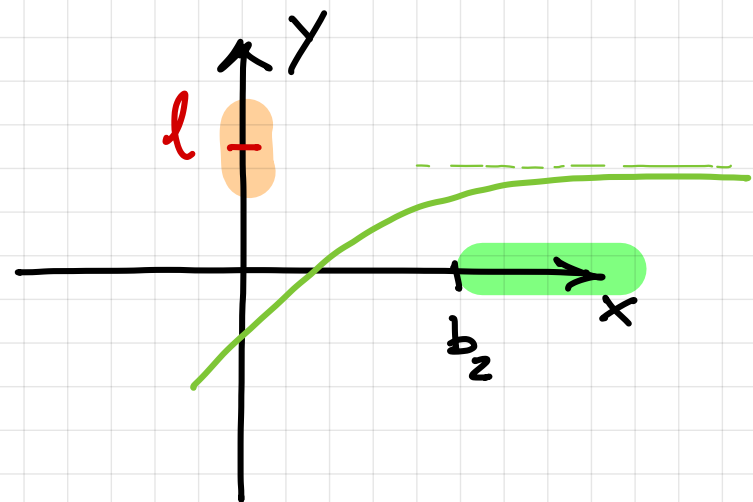
$$\bullet) \lim_{x \rightarrow +\infty} f(x) = -\infty$$

$$\forall b_1 > 0 \exists b_2 > 0 \mid x > b_2 \Rightarrow f(x) < -b_1$$



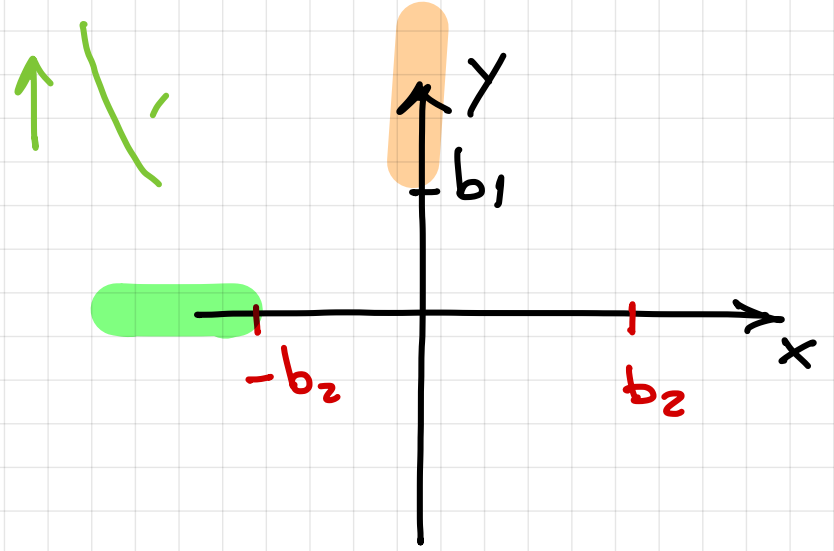
$$\bullet) \lim_{x \rightarrow +\infty} f(x) = l$$

$$\forall \varepsilon > 0 \exists b_2 > 0 \mid x > b_2 \quad l - \varepsilon < f(x) < l + \varepsilon$$



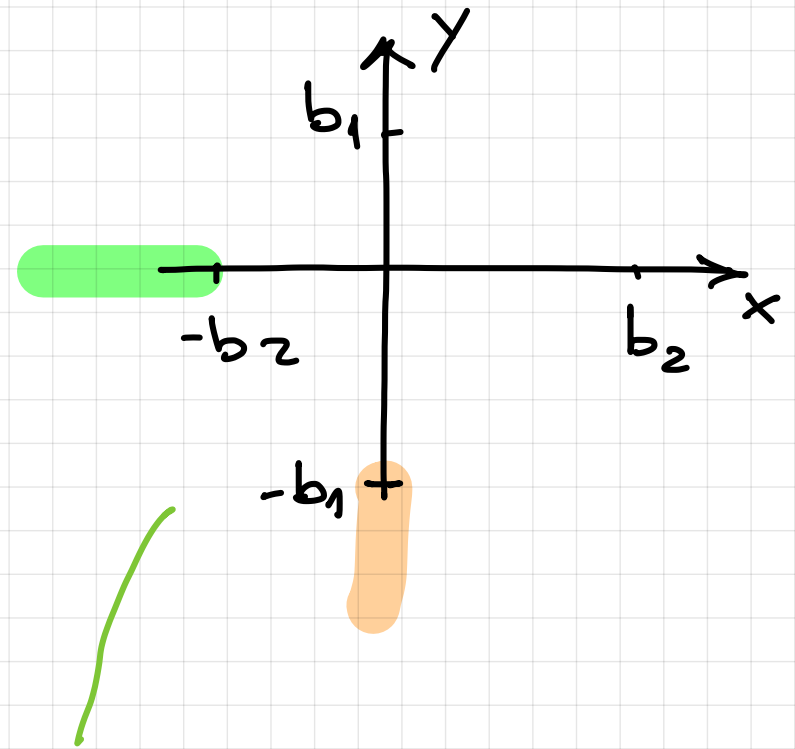
$$\bullet) \lim_{x \rightarrow -\infty} f(x) = +\infty$$

$$\forall b_1 > 0 \exists b_2 > 0 \mid x < -b_2 \Rightarrow f(x) > b_1$$

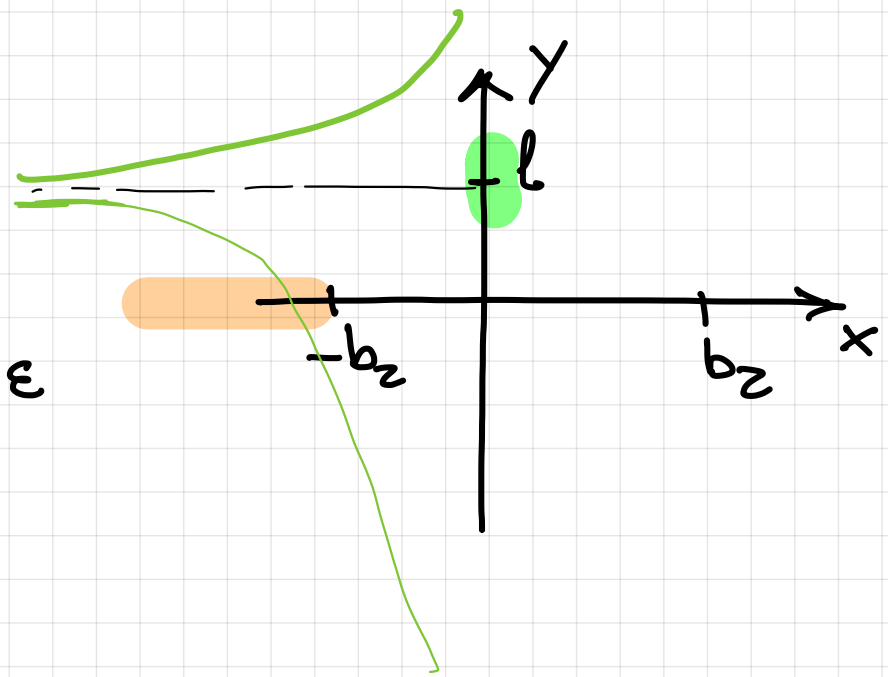


$$\bullet) \lim_{x \rightarrow -\infty} f(x) = -\infty$$

$$\forall b_1 > 0 \exists b_2 > 0 \mid x < -b_2 \Rightarrow f(x) < -b_1$$



•)  $\lim_{x \rightarrow -\infty} f(x) = l$



$$\forall \epsilon > 0 \exists b_2 > 0 \mid x < -b_2 \implies l - \epsilon < f(x) < l + \epsilon$$