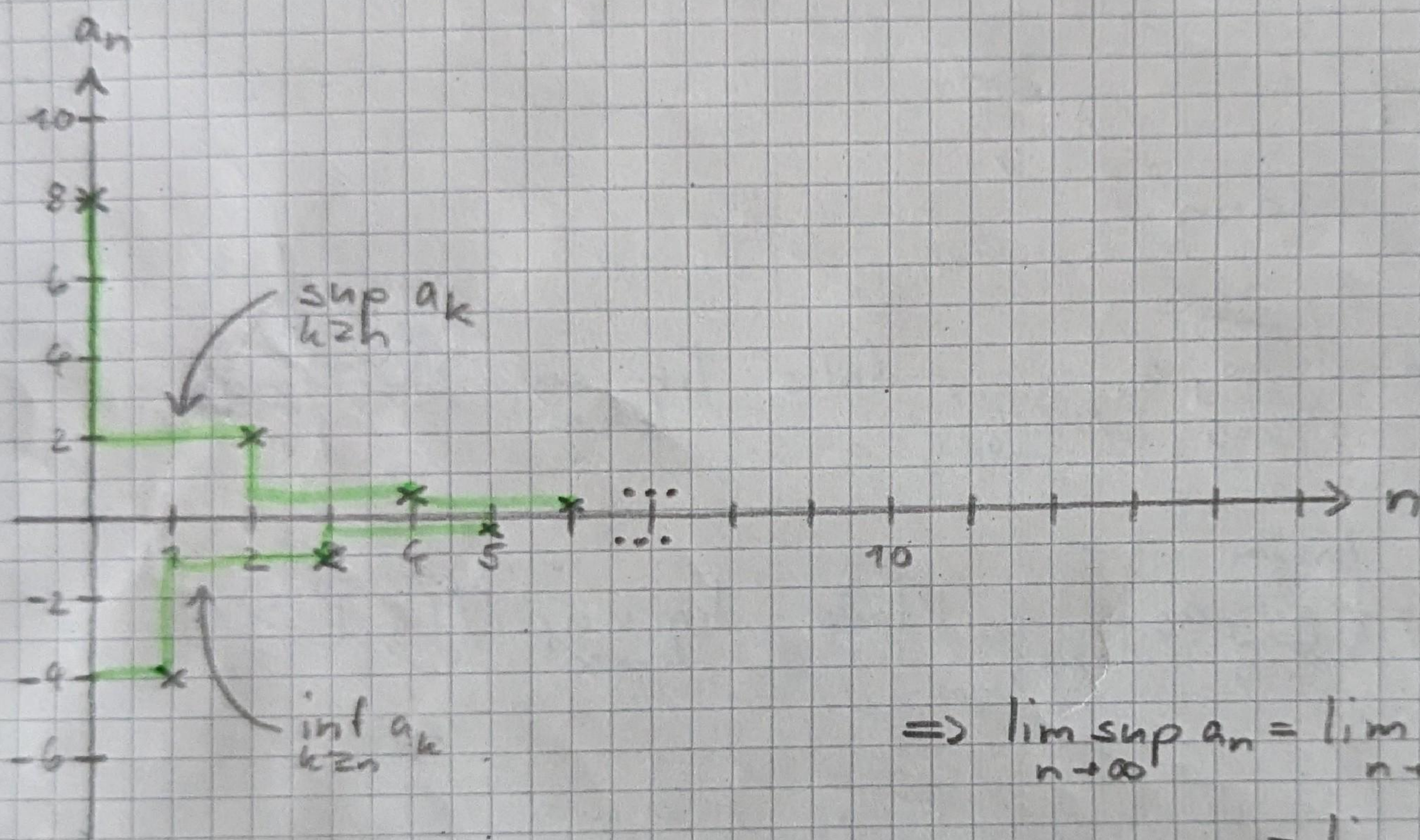


Repetition Limes superior / inferior

$$\limsup_{n \rightarrow \infty} a_n = \lim_{n \rightarrow \infty} \sup \{ a_k \in \mathbb{R} \mid k \in \mathbb{N}_0 \wedge k \geq n \}$$

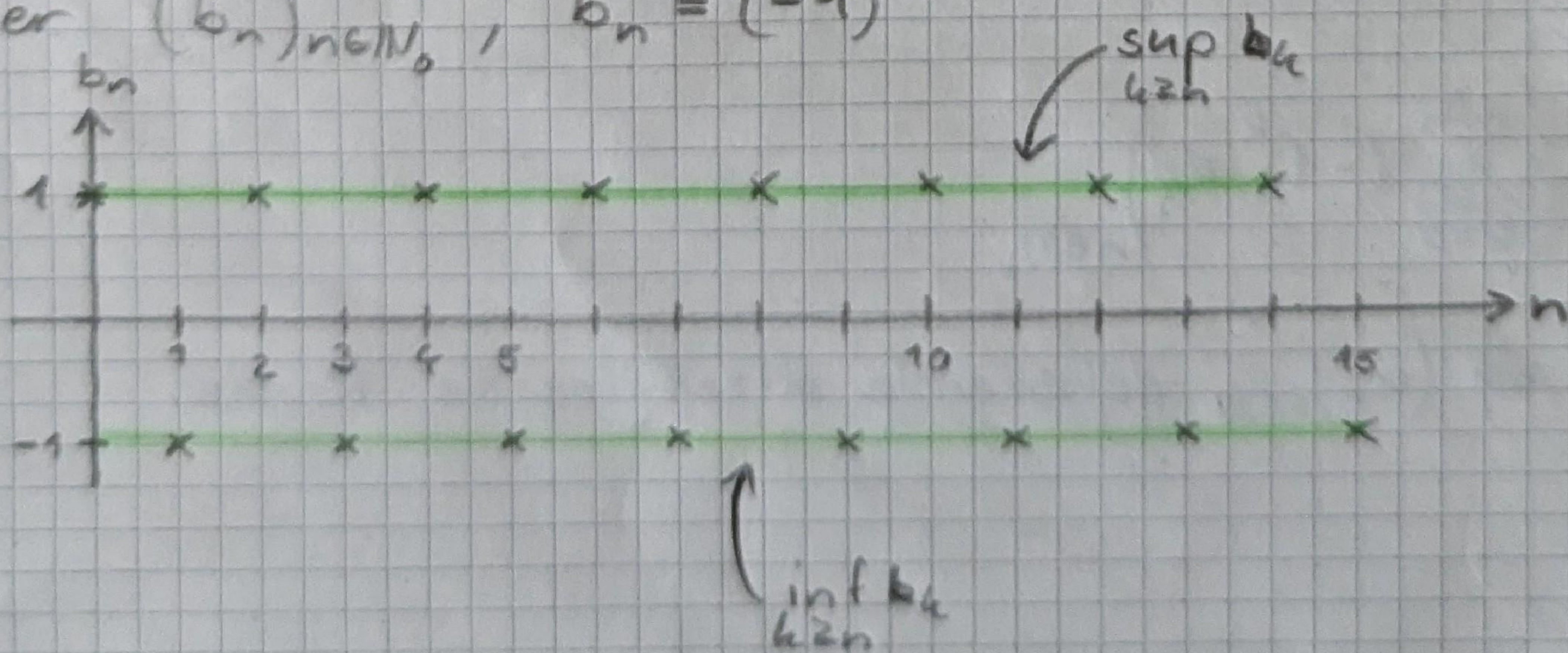
$$\liminf_{n \rightarrow \infty} a_n = \lim_{n \rightarrow \infty} \inf \{ a_k \in \mathbb{R} \mid k \in \mathbb{N}_0 \wedge k \geq n \}$$

Wir betrachten $(a_n)_{n \in \mathbb{N}_0}$, $a_n = 8 \cdot \left(-\frac{1}{2}\right)^n$



$$\Rightarrow \limsup_{n \rightarrow \infty} a_n = \liminf_{n \rightarrow \infty} a_n = \lim_{n \rightarrow \infty} a_n = 0$$

Oder $(b_n)_{n \in \mathbb{N}_0}$, $b_n = (-1)^n$



$$\Rightarrow \limsup_{n \rightarrow \infty} b_n = 1 \neq -1 = \liminf_{n \rightarrow \infty} b_n$$