

Remark 6.44. *[OBM]* Note that

$$\liminf_{x \rightarrow x_0} f(x) = \infty \iff \lim_{x \rightarrow x_0} f(x) = \infty$$

and

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