

m2

of reals were of vital
significance, consider

$$\{(x_n, y_n) : n \geq 1\} \text{ with } x_n, y_n \in \mathbb{R}.$$

What would it mean
to say that such a
sequence converged in \mathbb{R}^2 ?

Clearly,

$$(x_n, y_n) \rightarrow (x_\infty, y_\infty)$$

iff

$$x_n \rightarrow x_\infty \text{ and } y_n \rightarrow y_\infty$$