



# Norm Metrics

## 1 Why

If we have a norm, then we have a metric.

## 2 Motivating Result

Let  $R$  be the set of real numbers.

**Proposition 1.** *Let  $(V, F)$  be a vector space. Let  $f : V \rightarrow R$  be a norm. Let  $g : V \times V \rightarrow R$  such that*

$$g(x, y) = |x - y|.$$

*Then  $g$  is a metric.*

*Proof.*

□