



### Why

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

### Motivating Result

Let  $R$  be the set of real numbers.

**Prop. 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.*<sup>1</sup>

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<sup>1</sup>Future editions will include an account.



