

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 $f: V \to R$ be a norm. Let $g: V \times V \to R$ such that

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

Then g is a metric.

Proof. \Box