



## CONTINUOUS LINEAR FUNCTIONALS

### Why

We can characterize the continuous linear functionals.

### Main result

**Proposition 1.** *Let  $F$  be a linear functional on a normed space  $(V, \|\cdot\|)$ . The following are equivalent:*

1.  *$F$  is continuous;*
2.  *$F$  is continuous at  $0$ ;*
3.  $\sup_{\|x\| \leq 1} \{|F(x)|\} < \infty$ .<sup>1</sup>

For this reason we often call *continuous linear functionals* the *bounded linear functionals* or call them *continuous bounded linear functionals*.

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<sup>1</sup>Future editions will include an account, and that will fill out this sheet.



