

#flo #hw

1 | Linear Maps

no one gets excited about vector spaces -axler

the interesting part: linear maps!

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title: learning objectives
- fundamentals theorem of linear maps
- matrix of linear map w.r.t. given bases
- isomorphic vec spaces
- product spaces
- quotient spaces
- duals spaces
  - vector space
  - linear map

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2 | The vector space of linear maps

key definition!

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title: linear map
aka *linear transformation.*

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a *linear map* from V to W is a function $T: V \rightarrow W$ with the following properties:

****additivity****

$T(u+v) = Tu + Tv$ for all $u, v \in V$;

****homogeneity****

$T(\lambda v) = \lambda(Tv)$ for all $\lambda \in F$ and $v \in V$.

the functional notation $T(V)$ is the same as the notation Tv when talking about linear maps.

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title: notation --  $L(V, W)$ 
the set of all linear maps from  $V$  to  $W$ .

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2.0.1 | examples of linear maps

- zero?