#flo #hw

1 | Linear Maps

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no one get's excited about vector spaces -axler
the interesting part: linear maps!

title: learning objectives
- fundementals 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.* a *linear map* from $V$ to $W$ is a function T:V \to W with the following properties: **additivity** T(u+v) = Tu+Tv for all u, v \in V; **homogeneity** T(\lambda v) = \lambda v \in V for all \lambda v \in V. the functional notation T(V) is the same as the notation v \in V. the set of all linear maps from v \in V.
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2.0.1 | examples of linear maps

- 0?
 - 0 is the func that takes each ele from some vec space to the additive iden of another vec space.
 - * 0v = 0
 - * left: func from V to W, right: additive iden in W
 - * #question what does it mean for it to be a function from V to W?
- ullet identity, denoted I
 - Iv = v
 - maps each element to itself linear transformation like a .map?