

Last name _____

First name _____

LARSON—MATH 310—CLASSROOM WORKSHEET 04
Linear Spaces (Vector Spaces).

From Chp. 2 of Tsukada, et al., Linear Algebra with Python

Review: \mathbb{R} , *field*, *complex numbers*, \mathbb{R}^2 , \mathbb{K} , \mathbb{K}^n , *linear space* (or *vector space*), *subspace*.

1. What is a *linear map* (or *linear transformation*) $f : V \rightarrow W$, from linear space V to linear space W ?
2. What is an example?
3. What is the *kernel* of a linear transformation?
4. What is the *range* of a linear transformation?

From Chp. 3 of Tsukada, et al., Linear Algebra with Python

5. What is a *linear combination* of vectors?
6. What is an example?
7. What is the subspace *generated* by (or *spanned* by) a set of vectors?
8. What is an example?
9. Why is this collection a *subspace*?
10. What is a *finite-dimensional vector space*?