Last name _____

First name _____

LARSON—MATH 310–CLASSROOM WORKSHEET 02
Linear Spaces (Vector Spaces).

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

Review: $\mathbb{R}$, *field*, *complex numbers*.

1. What is $\mathbb{R}^2$?

2. How can we interpret the *vectors* in $\mathbb{R}^2$ geometrically?

3. Explain addition in $\mathbb{R}^2$ algebraically, and then geometrically.

4. Explain scalar multiplication in $\mathbb{R}^2$ algebraically, and then geometrically.

5. What is a *linear space* (or *vector space*) over a field $\mathbb{K}$?

6. Argue that $\mathbb{R}^2$ is a vector space.

7. What is $\mathbb{K}^n$?

8. Argue that $\mathbb{K}^n$ is a vector space.

9. What is a *subspace* of a vector space?

10. What is an example?

11. What is a *linear map* $f : V \to W$, from linear space V to linear space W?

12. What is an example?