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First name _____

LARSON—MATH 310—CLASSROOM WORKSHEET 06
Linear Independence and Dependence.

Review: \mathbb{R} , *field*, *complex numbers*, \mathbb{R}^2 , \mathbb{K} , \mathbb{K}^n , *linear space* (or *vector space*), *subspace*, *linear map* (or *linear transformation*), *kernel*, *range*, *linear combination*, *subspace generated by* (or *spanned by*) a set of vectors.

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

1. **(Notation).** Let A be a list of vectors from a linear space V . What is $\langle A \rangle$?

2. What is a *finite-dimensional vector space*?

3. What is a *linearly independent* set of vectors?

4. What is an example?

5. What is a *linearly dependent* set of vectors?

6. What is an example?

7. What is a *basis* of linear space?

8. What is an example?

9. What is the *standard basis* of K_n ?

10. Let \vec{v} be a vector in a linear space V with basis $X = \{\vec{v}_1, \vec{v}_2, \dots, \vec{v}_n\}$. What is the *representation* of \vec{v} with respect to basis X ?

11. What is an example?