More Observations

Observations:

- every subspace (with a finite basis) is a span (of the vectors in a basis)
- any linearly independent set can be enlarged (by adding vectors) to form a basis:

$$\text{basis} = \text{maximal linearly independent set}$$

- any spanning set can be reduced (by throwing away dependent vectors) to form a basis:

$$\text{basis} = \text{minimal spanning set}$$

Theorem: All bases of a vector space V have the same number of vectors. We call this number the **dimension** of V.