## Exercises for Module 3: Linear Algebra I

- 1. Let U and V be finite-dimensional vector spaces of the same dimension and let  $T:U\to V$  be a linear map. Prove that the following are equivalent:
  - $\bullet$  T is bijective
  - $\bullet$  T is injective
  - $\bullet$  T is surjective

2.

3.

4.

5.

6.