Advanced Linear Algebra

Introduction

This course was not nearly as advanced as I would have liked, but some of the proofs are interesting, and has, in all, been extremely useful.

Lecture 1

In general, eigenvector $\overrightarrow{x}$ of a matrix A is a non-trivial solution to $A\overrightarrow{x} = \lambda\overrightarrow{x}$ for some real number λ called tbe eigenvalue assoicated to x.

$$A\overrightarrow{x} = \lambda\overrightarrow{x} \implies A\overrightarrow{x} - \lambda\overrightarrow{x} = 0 \implies (A - \lambda I)\overrightarrow{x} = 0 \ (1)$$