

Revision: Chapter 3: Eigenvalues and eigenvectors

You should be able to do the following:

- Define what is meant by an eigenvector and an eigenvalue for a linear map $f : V \rightarrow V$.
- Define what is meant by an eigenvector and an eigenvalue for a real $n \times n$ matrix A .
- State the diagonalization theorem for linear maps.
- State the diagonalization theorem for matrices.
- Decide whether a $n \times n$ matrix A is diagonalizable (i.e. is similar to a diagonal matrix) and if it is find an invertible matrix P such that $P^{-1}AP$ is diagonal (as in Exercise Sheet 5, question 2).
- Apply the diagonalization theorem for matrices to study the long term behaviour of some dynamical systems (as in Exercise Sheet 5, question 3).