

Topics covered by exam 2

1. Linear maps (=homomorphisms):

- a) give a definition of: linear map, isomorphism, kernel and range of a linear map
- b) check if a given map is linear,
- c) find the kernel and range of a linear map,
- d) decide if two vector spaces are isomorphic.

2. Matrix representation of linear maps and matrix equivalence :

- a) find the matrix representing a given linear map with respect to given bases,
- b) find the transition matrix between two bases,
- c) find the matrix representation of a linear map after change of bases,
- d) decide if two matrices are (matrix) equivalent.

3. Determinants and inverse matrices:

- a) find the determinant of a given matrix,
- b) use Cramer's rule to solve a system of linear equations,
- c) decide if a matrix is invertible,
- d) find the inverse of a given matrix.