

## MATH2301 final exam information

- Q1: Number Theory (chapters 1, 2, 3)
- Q2: Groups (chapters 4, 5)
- Q3: Groups and Rings (chapters 5, 6)

Exam questions from Q1, Q2 and Q3 will be of a similar standard to the questions on practice exams.

- Q4 (a), (b), (c): Vector Spaces
  - Subspaces
  - Linear independence
  - Basis
  - Dimension
  - Span
  - Examples
  - Expect T/F questions in part (a).
  - Expect a proof in part (c).
- Q5 (a), (b), (c): Linear Transformations
  - Matrix representations
  - Isomorphisms
  - Change of basis
  - Diagonalisation
  - Cayley-Hamilton theorem
  - $T$ -invariant subspaces
  - Examples
  - Expect a proof in part (c).
- Not examinable:
  - Inner product spaces
  - Gram-Schmidt process
  - Jordan canonical form
  - Rational canonical form