

BO1.1. History of Mathematics

Sheet 3 — MT23

Reading for week 6:

- Stedall, Chapters 14, 15, 16 and 18
- Katz, Sections 21.1–21.3 and 22.1–22.3

(On derivatives and integrals, real and complex analysis, mathematical rigour, number theory, symbolic algebra, and the foundations of mathematics.)

Essay to be submitted ahead of the class in week 6:

Read the extract from Cayley's first paper on group theory (1854) (*Mathematics emerging*, §13.1.4). Explain its context, point out the most important aspects of its content, and assess its significance. (1,000 words)

Discussion topics to be prepared for the class in week 6:

1. After submitting your essay, you will be provided with a further short extract from Cayley's paper. Please read this and consider how different your essay would have been (if at all) if you had read this further extract first.
2. Limits and continuity are central concepts in calculus, yet their precise meanings remained sources of confusion and controversy for centuries. Pick either limit or continuity and analyse two specific articulations of your chosen concept from Chapter 11 of *Mathematics Emerging*, explaining the content, context, and significance of each. How are they similar and how are they different? To what extent should we think of different historical notions as describing the 'same' concept?