BO1.1. History of Mathematics
Sheet 4 — MT26

Reading for weeks 7 and 8:

- Stedall, Chapters 6, 15 and 17
- Katz, Sections 14.4, 19.3, 21.4, 22.3 and 24.2.2

(On complex analysis, linear algebra, number theory, and non-Euclidean geometry.)

Essay to be submitted by 12 noon on Monday of week 8:

On the next page, you will find two extracts that appeared in the 2026 exam paper. Choose *one* and comment on its context, content, and significance. You might like to plan out your essay roughly in advance and then write it under exam-style time constraints (i.e., limiting yourself to c.30 minutes). If you choose *not* to work to a time constraint, please do not exceed 1,000 words. At the top of your essay, please indicate which approach you have taken.

Discussion topic to be prepared for the class in week 8:

Choose your favourite AI platform and have a conversation with it on the theme of 'Who was the greatest mathematician of all time?' Ask it supplementary questions and challenge the assertions that it makes. We will structure a class discussion around the results that you find.

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Extract 1

When a right line falling upon two right lines, doth make on one & the selfe same syde, the two inwarde angles lesse then two right angles, then shal these two right lines beyng produced at length concurre on that part, in which are the two angles lesse then two right angles.

[Henry Billingsley (ed.), *The Elements of Geometrie*, London, 1570, fol. 6r]

Extract 2

If $f(x)$ is a function of x and if x is a definite value, then the function will change to $f(x+h)$ if x changes to $x+h$ [...] If it is now possible to determine for h a bound δ such that for *all* values of h which in their absolute value are smaller than δ, $f(x+h)-f(x)$ becomes smaller than any magnitude ϵ, however small, then one says that infinitely small changes of the argument correspond to infinitely small changes of the function. For one says, if the absolute value of a magnitude can become smaller than any arbitrarily chosen magnitude, however small, then it can become infinitely small. If now a function is such that to infinitely small changes of the argument there correspond infinitely small changes of the function, one then says that it is a *continuous function* of the argument, or that it changes continuously with this argument.

[Karl Weierstrass, lectures on the differential calculus delivered at the Berlin Industrial Institute in 1861, notes taken by H. A. Schwarz, translation by K. Bing]

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