This list is intended as the start of a study guide. There is no guarantee that because a topic is listed here that it will be on the midterm, nor is there a guarantee that every problem on the midterm is represented in the list below. The exam will cover all material from Chapters 1–4.

You will be required to do straightedge and compass constructions in the course of the exam. If you have your own compass and ruler, please bring them.

- Know how to do arithmetic via constructions. In particular, you should know how to add, subtract, multiply, divide and take the square root of line segments.
- Know how to do basic proofs using Euclid's axioms and propositions. A list of the book I propositions will be given to you.
- Understand how the parallel postulate is used in book I. Know how to show a given statement is equivalent to the parallel postulate.
- Know Thale's theorem and its consequences.
- Read up on area and how it is used to prove the Pythagorean Theorem and Thale's theorem.
- Look over the worksheet on angle surplus and area on a sphere.
- Know how to construct a right angled triangle with a given hypotenuse.
- Lines equidistant between two points. Know how they are related to isometries and reflections.
- Understand the algebraic criterion for constructibility of a point and the relationship between this criterion and the act of solving simultaneous algebraic equations.
- Know the classification of isometries.
- Look over models of Euclidean geometry: points in the plane; vectors; complex numbers. You will be expected to be able to prove things using any of these models.
- Know the representation of isometries by complex valued functions.
- Understand the relationship between angles and inner products.
- Understand the big picture of Hilbert's axioms, especially betweenness. A list of these axioms will be given to you if needed.