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 final exam will be comprehensive, but will have an emphasis on material covered since the last midterm (Chapters 6 and 8).

In addition to all topics from the midterms, some specific topics you should study are:

- Know Pappus and Desargues theorems and their corollaries.
- Know the constructions for projective arithmetic (how to add and multiply points in $\mathbb{RP}^1$).
- What is the relationship between Pappus and Desargues theorems and the field axioms?
- Review the construction from Section 6.2.
- What is the model for hyperbolic geometry in terms of the upper half plane?
- What is a Möbius transformation? How is the boundary of the upper half plane and the set of Möbius transformations related to $\mathbb{RP}^1$ and the set of fractional linear transformations?
- What are hyperbolic lines? Know the formulas for them.
- What objects are preserved by Möbius transformations?
- What is the distance between two points in the hyperbolic upper half plane?
- What is the relationship between the area of a triangle and the angles of that triangle in the hyperbolic plane?
- What are the kinds of hyperbolic isometries?