MAT360 Spring 2015
Practice Midterm II

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- to prove all the foundational theorems from Paragraphs 103-134. It is expected that you will reproduce a proof from the book or will come up with an equivalent proof. "Proofs" that derive theorems from their corollaries will not be accepted.
- to do all the construction problems discussed in Paragraphs 103-134
- to do all the simple construction problems(See below).
- to solve *all* the easy problems.

Those who what to get a grade better then C should try to solve all the problems given below. Mentioned abilities are , of course, necessary but not sufficient for passing the test. The actual test problems will not repeat problems of this practice exam. The problems are taken from Kiselev's *Geometry*.

1 Questions about the logical structure of Plane Geometry

1. Do we need postulate of parallels to prove that any three non collinear points determine a circle passing through it?
2. What are the fundamental constructions (you can call them axioms) that rely on existence of certain isometries in plane geometry?

2 Questions to prove a theorem from the book (from page 83 through page 110)

The following list of theorems are considered as central. The set of theorems whose proofs you are supposed to know includes but not limits to this list.

1. Foundational theorems §104 ,§105 ,§107 ,§109 ,§123 ,§125
2. Theorems about properties of geometric objects §106 ,§110 ,§111 ,§115 ,§117 ,§118 ,§119 ,§124, §126
3. Theorems from Viro's notes up to page 2 inclusive.

Pay special attention to theorems whose proofs has been left as an exercise.

3 Construction problems discussed in the book

Bring a compass and a ruler and be prepared to repeat construction of one of the problems discussed in the book §108,§127-§134

4 Construction problems

1. Simple problems 244,245,247,249,255-257,267,278-280, 284,286,287,290-297
2. Harder problems 246,248,265,266,281,282,283,285,288,289,298-304

5 Problems on proofs

1. Easy 225-229,232,233,235,237-239,240,241,243,250,251,253,258,259,260,262,264,268,270,271,274,275,276
2. Harder 230,231,236,242,252,254,269,272,273,277