Test 3 Information

Test #3 is Wed., April 2, in class.
Reminder: The final exam for this class is 7:00-10:00 pm Friday May 2, in the usual classroom.

Test #3 will cover Sections 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5

- **Definitions**
  - Central reflection
  - involutions
  - dilatation (p. 43)
  - group of transformations
  - scalar product
  - length of a vector
  - distance between two points
  - orthogonal vectors, orthogonal lines
  - rhombus
  - perpendicular bisector
  - circumcenter
  - circumcircle
  - rectangle
  - an altitude of a triangle, foot of the altitude
  - orthocenter
  - Euler line
  - circle
  - orthogonal projection
- **Major Theorems**
  - Central reflections do not form a group (Theorem 2.15)
  - Dilatations form a group (Theorem 2.18). Be sure you have the correct definition of dilatation!
  - The perpendicular bisectors of the sides of a triangle are concurrent.
  - Theorem of Pythagoras
  - The altitudes of a triangle are concurrent.
  - Nine-Point Circle Theorem
  - Cauchy-Schwarz Theorem
- **Proofs**
  - any proof from the homework
  - Theorem of Pythagorus

  - Cauchy-Schwarz inequality
  - Theorem 3.5 on the altitudes of a triangle. There are 3 proofs given in the book - all are good. In class, we did the first one.
  - short proofs of theorems and propositions in the book

- We did **not** cover the following and it will **not** be on this test nor on the final exam
  - the part of Section 2.5 beginning on p. 47 with "If V is any set, the group...", through the end of the section. I highly recommend reading this part for your own information, however. It puts several topics we've studied in a larger context.
  - page 67 beginning with "Using $G = \frac{1}{3}(A + B + C)$..." through the middle of page 68.
  - Theorem of Thales (at least read the statement for your own knowledge!)

- **Old Tests** From the 2007 tests posted on the course webpage, the following are relevant for this test:
  - Test #2, problem 2
  - Test #3, problems 1a, 2ab, 3, 6b
  - Final, problems 6, 11g

- Remember to review (redo?) homework problems, including the Geometer's Sketchpad work.