New Concepts

## Problem Set #7

*"The understanding of mathematics is necessary for a sound grasp of ethics."*

- Socrates

New Postulates and Theorems

- Theorem 4 – If M is the midpoint of $\overline{AB}$ , then $AM = \frac{1}{2}AB$ and $MB = \frac{1}{2}AB$ (Midpoint Thm)
- Theorem 5 – If $\overrightarrow{BX}$ is the bisector of $\angle ABC$,

  then $m\angle ABX = \frac{1}{2}m\angle ABC$ and $m\angle XBC = \frac{1}{2}m\angle ABC$ (Angle Bisector Thm)

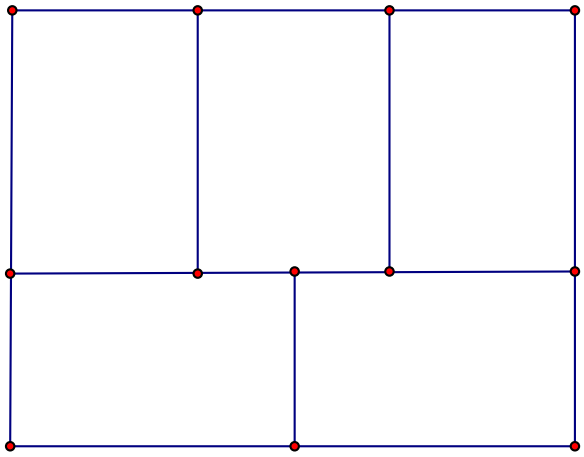
Exercises:

p.41 #12-14
p.46 #12-22

Problems:

7-1 Rectangles within rectangles

A large rectangle with perimeter 176 is divided into 5 smaller congruent rectangles. What is the perimeter of one of the five smaller rectangles?



7-2 The Footrace

Billy Bobb and Mr. O ran a 100 meter race. Billy Bobb crossed the finish line when Mr. O had gone 95 meters, so he won the race by 5 meters.

When they raced a second time, Billy Bobb wanted to make the contest more even so he handicapped himself by starting 5 meters behind the start line.

If the two ran at the same constant speed as before, who won the second race and by how much? (Or did they tie?) Explain your reasoning.