Your Personally Illustrated Examples
of Definitions, Postulates, and Theorems
of Quarter 1

This first quarter we have begun our journey of making mathematical proofs. This quarter's important Definitions, Postulates and Theorems often used in proofs are listed in the next few pages of this pdf document. For each:

1. Write out the definition, postulate, or theorem (try to make it a If-then statement).

2. Draw an example diagram to **illustrate the hypothesis** of the definition, postulate, or theorem.

3. **State your example's conclusion** based on the definition, postulate, or theorem you are illustrating.

Example:

First we find the Ruler Postulate on page 19:

Postulate 1.4-1   Ruler Postulate

The points on a line can be paired, one-to-one, with a real number. The real number that corresponds to a point is called the **coordinate** of the point.

names of points

The above allows us to calculate distance. The **distance** between points A and B is the absolute value of the difference of their coordinates.
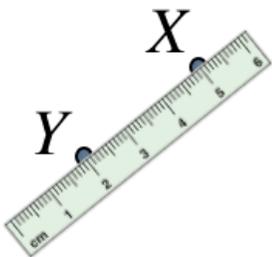
We use the notation AB for distance or the length of $\overline{AB}$.

coordinates of points (these are real numbers)

$$AB = |x_2 - x_1|$$
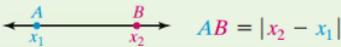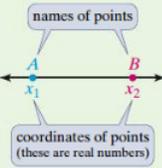
1. Write it as a conditional ("if-then") statement (when possible):

   "If you place a number line between two points, the distance between the points is the (absolute value of the) difference between their coordinates"

2. Draw the hypothesis (feel free to draw your own here)

3. State the conclusion
   $XY = |5 - 2| = 3$.

Chapter 1

1. §1.2 Definitions, page ___9___
   (a) Geometry:

   (b) Logic:

   (c) Definition:

   (d) The difference of a Postulate and an Axiom:

   (e) Theorem:

2. §1.3 Important Notation and Definitions for Points, Lines and Planes
   (a) Point

   (b) Line

   (c) Segment (or Line Segment)

   (d) Angle

   (e) Ray

   (f) Plane

   (g) Space

   (h) opposite rays

   (i) intersection

   (j) colinear

   (k) coplanar

   (l) congruent

3. §1.4: Measure of Segments and Angles

   (a) coordinate

   (b) distance

   (c) congruent

   (d) midpoint

   (e) bisect

   (f) the difference between $\overleftrightarrow{AB}$, $\overrightarrow{AB}$, $\overline{AB}$, and AB

4. Ruler Postulate (p. 19)

5. Segment Addition Postulate (p. 21)

6. Protractor Postulate (p. 26)

7. Angle Addition Postulate (p. 28)

8. §1.6 Angle Pairs and Their Relationships

   (a) Adjacent Angles

   (b) Vertical Angles (p. ___)

   (c) Linear Pair (p. ___)

   (d) Complement/Complementary Angles (p. ___)

   (e) Supplement/Supplementary Angles (p. ___)

   (f) Angle Bisector (p. 34)