

WHAT WE CAN USE TO PROVE THEOREMS IN CHAPTER 1

Postulate 1	Through any two distinct points, there is exactly one line.	
Postulate 2	The measure of any line segment is a unique positive number.	This needs to be expanded. We need the Ruler Postulate : The points of a line can be placed in a correspondence with the real numbers such that (1) to every point on the line there corresponds exactly one number; (2) to every real number there corresponds exactly one point of the line; and the distance between any two points is the absolute value of the difference of the corresponding numbers.
Postulate 3	If X is a point of $\overline{AB}$ and A-X-B, then $AX + XB = AB$	We need a definition of between. One solution would be to take this as a definition of “between” rather than a postulate. <i>ie.</i> , To say that X is <u>between</u> A and B means that X is a point of AB and $AX + XB = AB$.
Postulate 4	If two lines intersect, they intersect at a point.	
Postulate 5	Ignore	
Postulate 6	Ignore	
Postulate 7	Ignore	
Postulate 8	The measure of an angle is a unique positive number.	This needs to be expanded. We need to specify that the measure of a straight angle is 180. Also we need to say that if $\overrightarrow{AB}$ is a ray and r is a positive number less than 180, there is a ray $\overrightarrow{AC}$ such that $m \angle ABC = r$.
Postulate 9	If a point D lies in the interior of an angle ABC, then $m \angle ABD + m \angle DBC = m \angle ABC$	We need a definition of interior.
Definition 1	Line Segment	
Definition 2	The distance between two points	

Definition 3	Congruent line segments	
Definition 4	Midpoint of a line segment	
Definition 5	Ray	
Definition 6	Parallel lines	
Definition 7	Angle	
Definition 8	Adjacent angles	
Definition	An exterior side of a pair of adjacent angles	
Definition 9	Congruent angles	
Definition 10	Bisector of an angle	
Definition 11	Complementary angles	
Definition 12	Supplementary angles	
Definition 13	Perpendicular lines	
Definition	Vertical angles	
	Types of angles: acute, right, obtuse, straight, reflex	
	Opposite rays	This could be worded better. <i>ie.</i> Opposite rays are two rays with a common endpoint whose union is a straight line.
Theorem 1.3.1	A line segment has only one midpoint	The book's argument shows that a line segment can't have two or more midpoints. We need the Ruler Postulate, <i>ie.</i> , the expansion of Postulate 2 to show that there is one.
Theorem 1.6.1	Two perpendicular lines meet in right angles.	
Theorem 1.6.2	If two lines intersect then the vertical angles formed are congruent	I think that we need to take this as a postulate. I don't see how we can prove this with the given postulates.
Theorem 1.6.3	There is exactly one line perpendicular to a given line at any point on the line.	

Theorem 1.6.4	The perpendicular bisector of a line segment is unique.	
Theorem 1.7.1	If two lines meet to form a right angle, then these lines are perpendicular.	
Theorems 1.7.2 through 1.7.6		