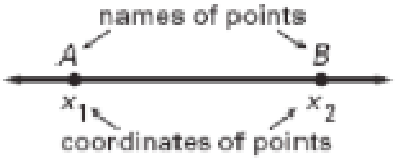
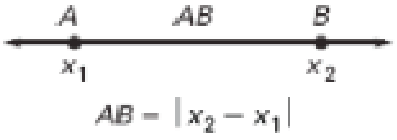
Chapter 1: Points, Lines and Planes

Postulate 1: Ruler Postulate

The points on a line can be matched one to one with real numbers. The real number that corresponds to a point is the _____ of the point.



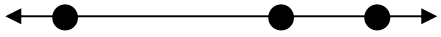
The _____ between points A and B, written as AB, is the absolute value of the difference between the coordinates of A and B.



AB is also called the _____ of $\overline{AB}$.

Postulate 2: Segment Addition Postulate

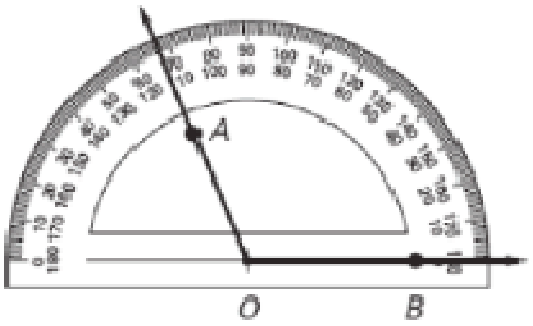
If B is between A and C, then _____.



If _____, then B is between A and C.

Postulate 3: Protractor Postulate

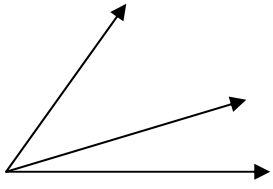
Consider a point A on one side of $\overleftrightarrow{OB}$. The rays of the form $\overrightarrow{OA}$ can be matched one to one with the real numbers from 0 to _____.



The measure of _____ is equal to _____ _____between the real numbers for $\overrightarrow{OA}$ and $\overrightarrow{OB}$.

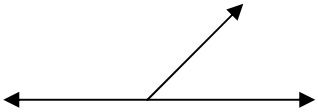
Postulate 4: Angle Addition Postulate

If B is in the interior of <AOC, then



_____ + _____ = _____

If <AOC is a _____ angle and B is any point not on $\overleftrightarrow{AC}$,



then _____ + _____ = _____

Postulate 5
A line contains at least _____ points; a plane consists at least _____ points not all in one line;

space contains at least _____ points not all in one plane.

Postulate 6
Through any two points there is exactly _____ line.

Postulate 7
Through any three points there is _____ one plane, and through any three noncollinear

points there is _____ one plane.

Postulate 8
If two _____ are in a plane, then the line that contains the _____ is in that plane.

Postulate 9
If two planes intersect, then their intersection is a _____.

Theorem 1-1
If two _____ intersect, then they intersect in exactly one _____.

Theorem 1-2
Through a line and a point not in the line there is exactly one _____.

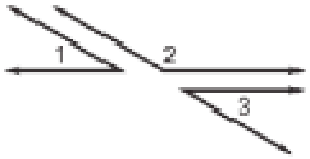
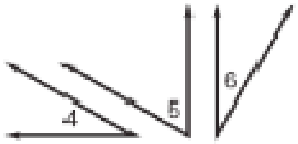
Theorem 1-3
If two _____ intersect, then exactly one plane contains the _____.

Chapter 2: Deductive Reasoning

Algebra Postulates	Definition
Addition Property of Equality	
Subtraction Property of Equality	
Multiplication Property of Equality	
Division Property of Equality	
Substitution Property of Equality	
Reflexive Property of Equality	
Symmetric Property of Equality	
Transitive Property of Equality	
Reflexive Property of Congruence	
Symmetric Property of Congruence	
Transitive Property of Congruence	
Distributive Property	
Simplify	

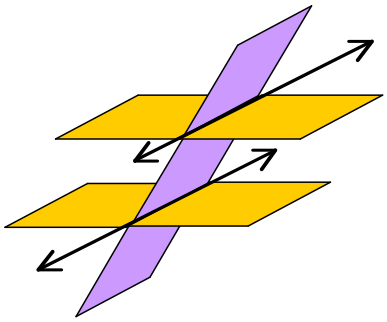
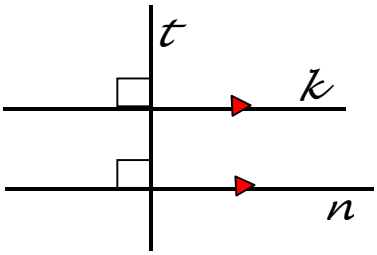
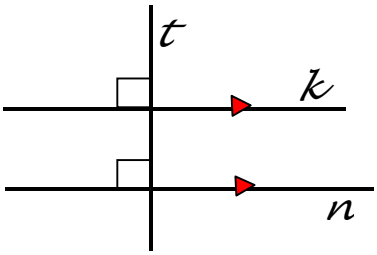
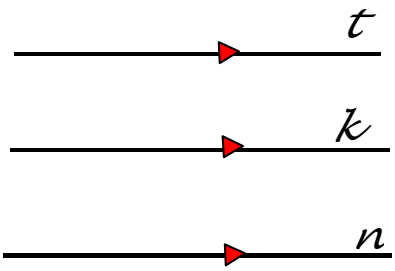
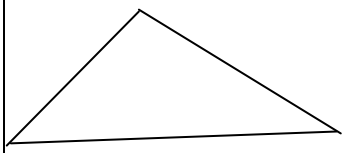
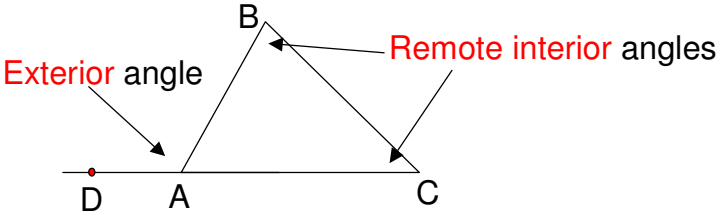
Chapter 2: Segments & Angles

Definition of Midpoint	
Midpoint Theorem	
Definition of Angle Bisector	
Angle Bisector Theorem	
Definition of Complementary Angles	
Definition of Supplementary Angles	
Definition of Straight Angle	
Straight Angle Postulate	
Definition of Linear Pair	
Linear Pair Postulate	
Vertical Angles Theorem	

Definition of Perpendicular Lines	
Right Angle Congruence	
Perpendicular Line Theorem (2-4)	
Congruent Adjacent Angles Theorem (2-5)	
Perpendicular Complements Theorem (2-6)	
Congruent Supplements Theorem	If two angles are supplementary to the same angle (or to congruent angles), then they are _____. If $m\angle 1 + m\angle 2 =$ _____ and $m\angle 2 + m\angle 3 =$ _____, then _____. 
Congruent Complements Theorem	If two angles are complementary to the same angle (or to congruent angles), then the two angles are _____. If $m\angle 4 + m\angle 5 =$ _____ and $m\angle 5 + m\angle 6 =$ _____, then _____. 

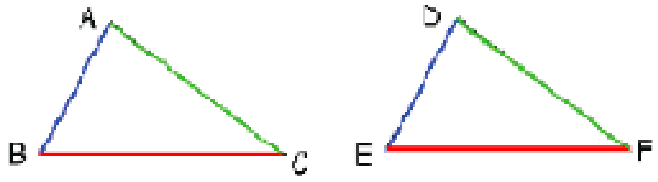
Chapter 3: Parallel Lines

Parallel Line Postulates	Definition
Given Parallel Lines (If Parallel Lines, then _____)	
Corresponding Angles	
Alternate Exterior Angles	
Alternate Interior Angles	
Same-side Angles	
Prove Parallel Lines (If _____, then parallel lines)	
Corresponding Angles Converse	
Alternate Exterior Angles Converse	
Alternate Interior Angles Converse	
Same-side Angles Converse	

Theorem 3-1	
Theorem 3-4: Perpendicular transversal	
Theorem 3-7	
Theorem 3-10	
Triangle Sum Theorem	
Exterior Angle Theorem	

Chapter 4: Congruent Triangles

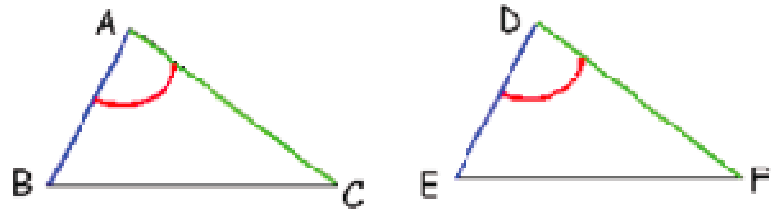
SSS Postulate:



If you can show

Then you can prove

SAS Postulate:

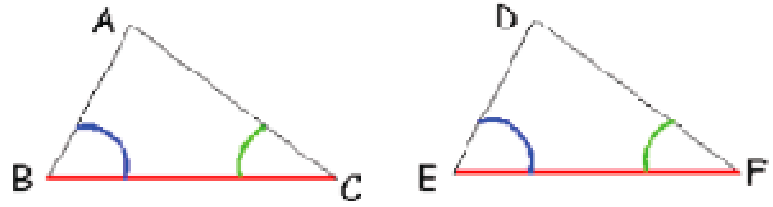


An angle is included between two sides of a triangle if its vertex is a common endpoint of both sides.

If you can show

Then you can prove

ASA Postulate:



A side is included between two angles of a triangle if it is a common side of both angles.

If you can show

Then you can prove

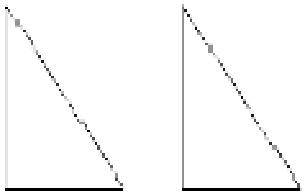
Theorem 4-3: AAS (Angle-Angle-Side):

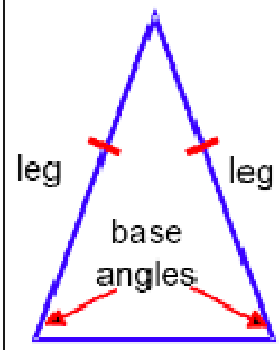
A side is NON-included between two angles if it is not common to both angles

If you can show

Then you can prove

Theorem 4-4: Hypotenuse Leg Theorem:

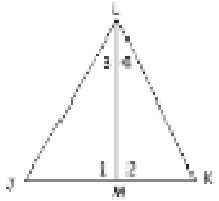
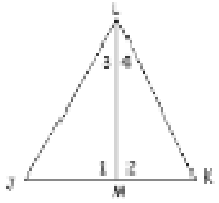
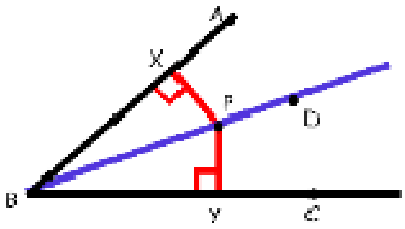
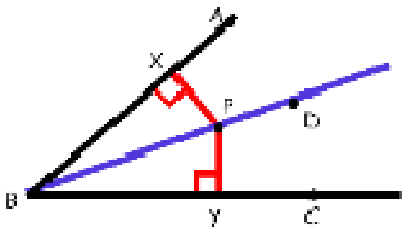




Theorem 4.1:

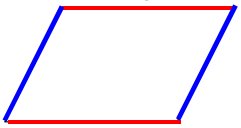
Theorem 4.2: Converse of 4.1.

Corollary:

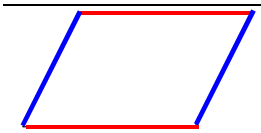
Theorem 4.5	
Theorem 4.6	
Theorem 4.7	
Theorem 4.8	

Chapter 5: Quadrilaterals

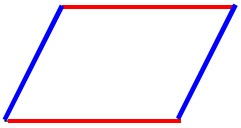
Five Ways to Prove that a Quadrilateral is a Parallelogram



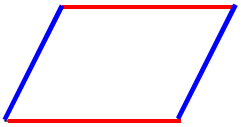
Theorem 5-4:



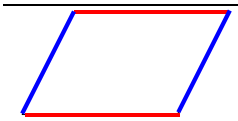
Theorem 5-5:



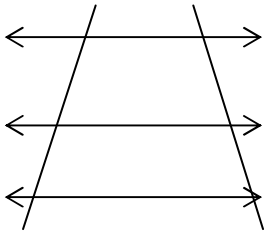
Theorem 5-6:

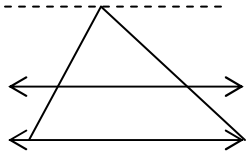
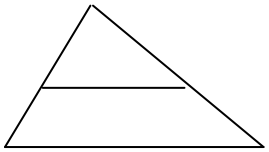


Theorem 5-7:



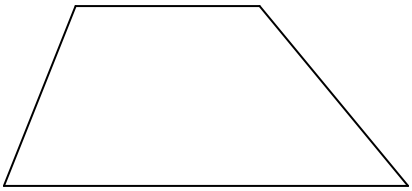
Use Definition of a parallelogram:

	**Theorem 5-8:**
	**Theorem 5-9:**

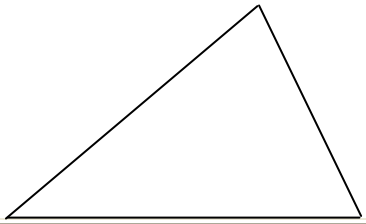
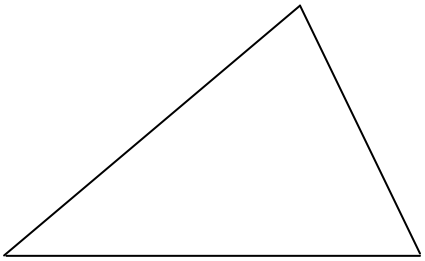
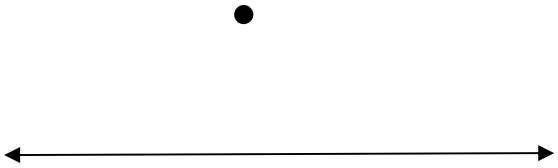
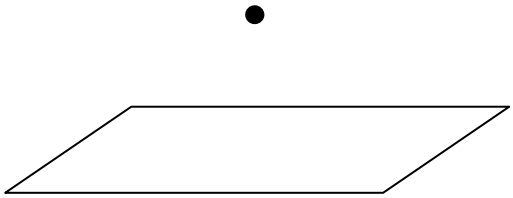
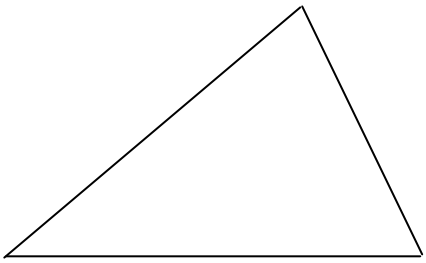
	**Theorem 5-10:**
	**Theorem 5-11:**

Theorem 5-18:

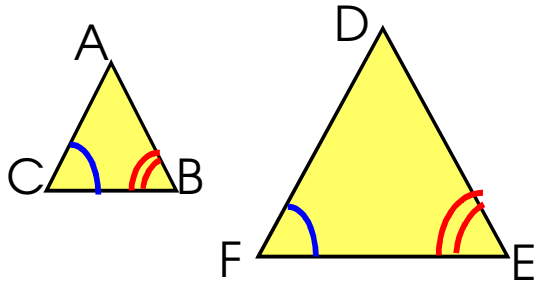
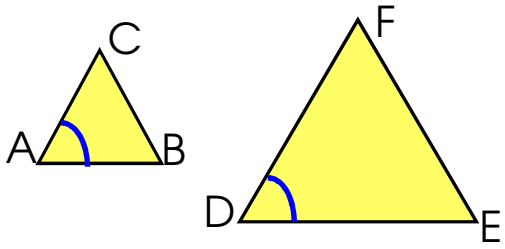
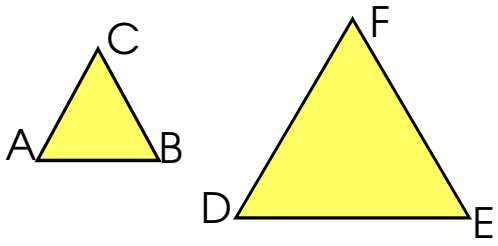
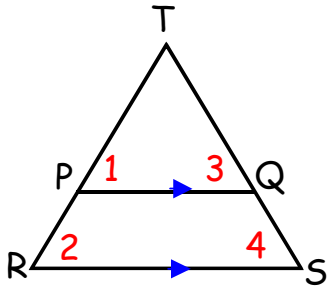
Theorem 5-19:



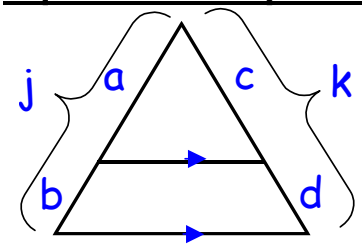
Chapter 6: Inequalities

	**Theorem 6-2**:
	**Theorem 6-3**:
	**Corollary 1:**
	**Corollary 2:**
	**The Triangle Inequality Theorem 6-4:**

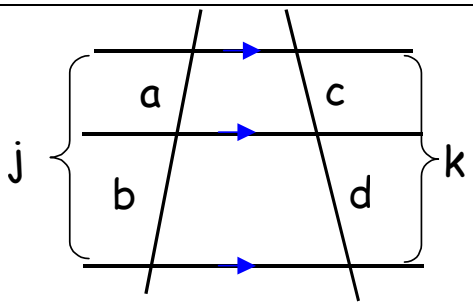
Chapter 7: Similarity

AA Similarity Postulate	
SAS Similarity Thm.	
SSS Similarity Thm.	
Triangle Proportionality Theorem:	

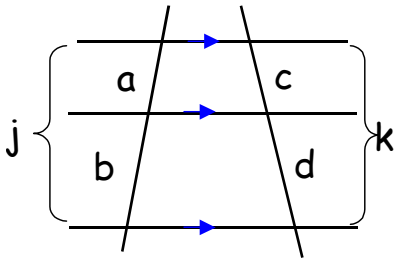
Equivalent Proportions



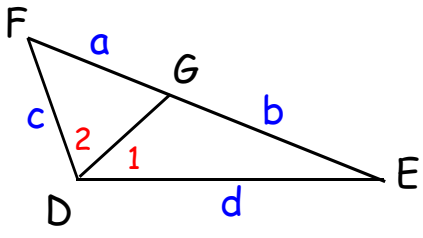
Corollary



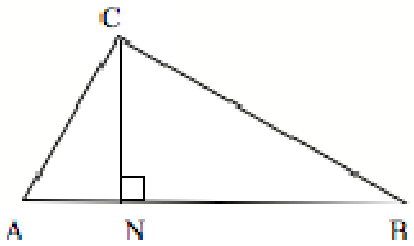
Equivalent Proportions



Triangle Angle-Bisector Theorem



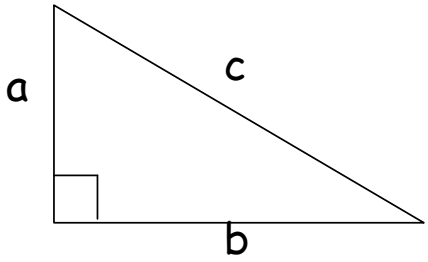
Chapter 8: Right Triangles



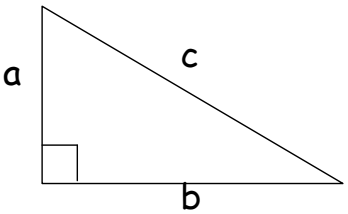
Theorem 8.1:
If the altitude is drawn to the hypotenuse of a right triangle, then the two triangles formed are similar to the original triangle and to each other.

Corollary 8.1a When the altitude is drawn to the hypotenuse of a right triangle, the length of the altitude is the geometric mean between the segments of the hypotenuse.

Corollary 8.1b When the altitude is drawn to the hypotenuse of a right triangle, each leg is the geometric mean between the hypotenuse and the segment of the hypotenuse that is adjacent to that leg.



Theorem 8.2: The Pythagorean Theorem:



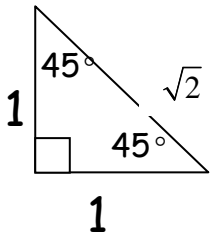
Converse of the Pythagorean Theorem:

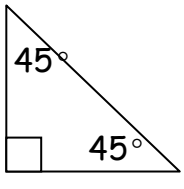
Thm 8-3:
If $c^2 = a^2 + b^2$

Thm 8-4:
If $c^2 < a^2 + b^2$

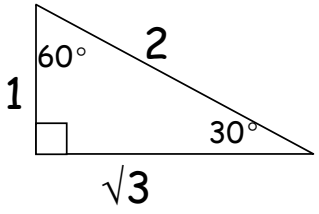
Thm 8-5:
If $c^2 > a^2 + b^2$

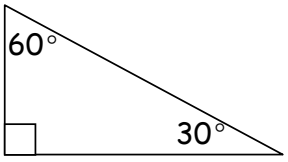
Theorem 8-6: In a 45°- 45°- 90°



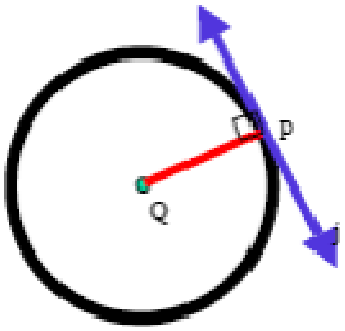


Theorem 8-7: In a 30°- 60 °- 90°

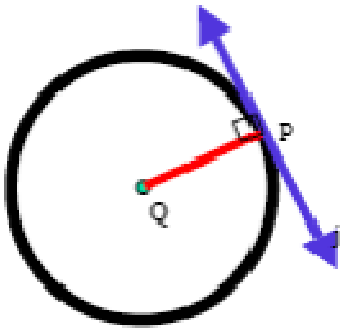




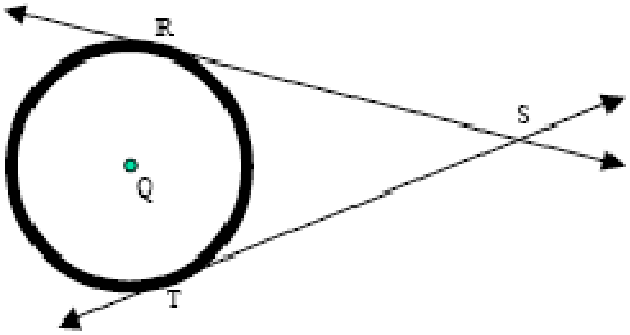
Chapter 9: Circles



Theorem 9.1:
If a line is _____ to a circle, then the line is _____ to the radius drawn to the point of tangency.



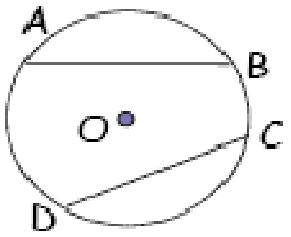
Theorem 9.2:
If a line in the plane of a circle is _____ to a radius at its outer endpoint, then the line is _____ to the circle.



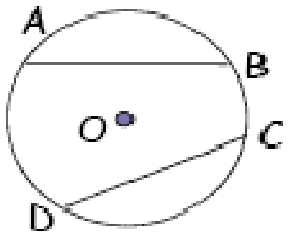
Corollary 9.1:
Tangents to a circle from point are _____.

Theorem 9.4: In the same circle or in congruent circles:

1) If

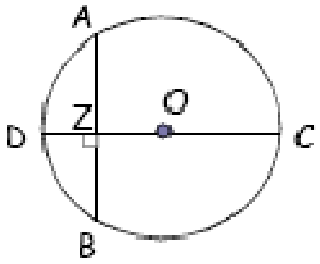


2) If

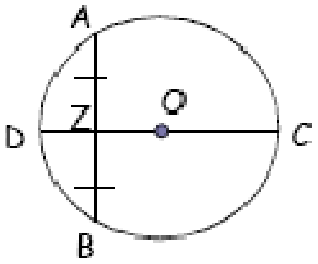


Theorem 9.5: A diameter that is perpendicular to a chord bisects the chord and its arc.

1) If

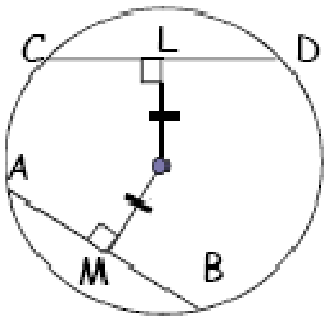


2) If

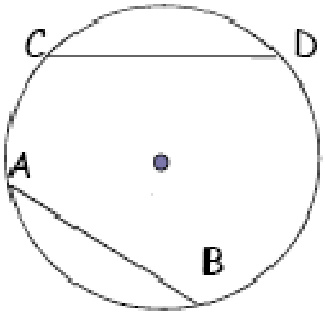


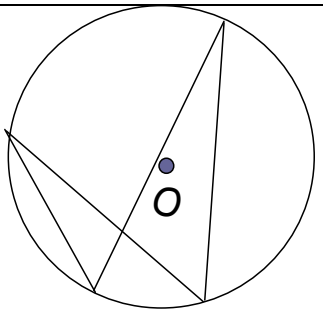
Theorem 9.6: In the same circle or in congruent circles:

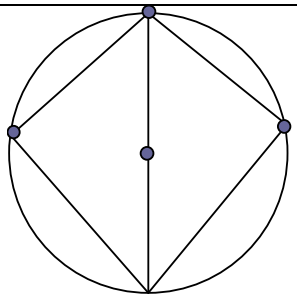
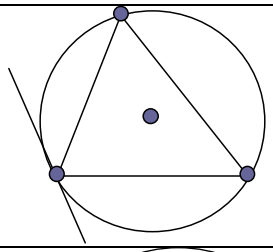
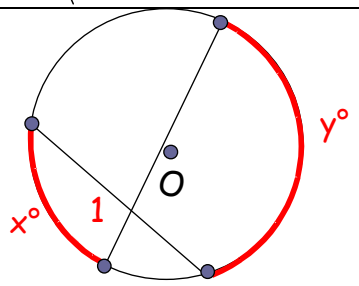
1) If



2) If

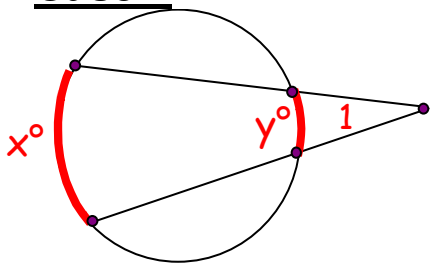


Theorem 9-7:	

Corollary 1:	
Corollary 2: **Corollary 3:**	
Theorem 9-8:	
Theorem 9-9:	

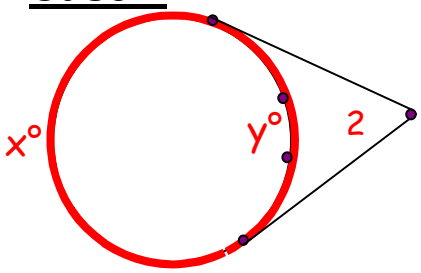
Theorem 9-10:

Case 1:



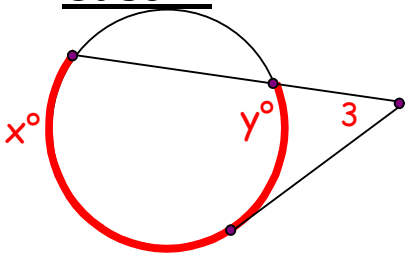
$m\angle 1 = \frac{1}{2}(x - y)$

Case II:



$m\angle 2 = \frac{1}{2}(x - y)$

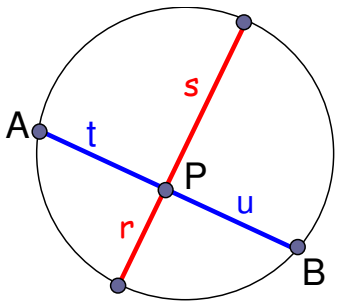
Case III:



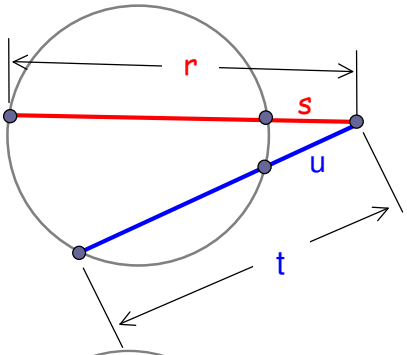
$m\angle 3 = \frac{1}{2}(x - y)$

Definition: **Segments of Chords**:

Theorem 9-11:



Theorem 9-12:



Theorem 9-13: