Geometry Cheat Sheet

Chapter 1

- **Postulate 1-6**
  Segment Addition Postulate - If three points A, B, and C are collinear and B is between A and C, then AB + BC = AC.

- **Postulate 1-7**
  Angle Addition Postulate - If point B is in the interior of AOC, then

  m AOB + m BOC = m AOC.

- **Adjacent Angles -** two coplanar angles with a common side, a common vertex, and no common interior points.

- **Vertical Angles -** two angles whose sides are opposite rays.

- **Complementary Angles -** two angles whose measures have a sum of 90. Each angle is called the complement of the other.

- **Supplementary Angles -** two angles whose measures have a sum of 180. Each angle is called the supplement of the other.

- **Postulate 1-9 Linear Pair Postulates -** If two angles form a linear pair, then they are supplementary.

- **Angle Bisector -** a ray that divides an angle into two congruent angles. Its endpoint is at the angle vertex within the ray, a segment with the same endpoint is also an angle bisector.

Constructions

- **Constructing Congruent Segments –**
- Step One: Draw a ray with endpoint C.
- Step Two: Open the compass to the length of AB.
- Step Three: With the same compass setting, put the compass point on point C. Draw an arc that intersects the ray. Label the point of intersection D.

- **Constructing Congruent Angles –**
- Step One: Draw a ray with endpoint S.
- Step Two: With the compass on vertex A, draw an arc that intersects the sides of A. Label the points of intersection B and C.
- Step Three: With the same compass setting, put the compass point on point S. Draw an arc and label its point of intersection with the ray as R.
- Step Four: Open the compass to the length BC. Keeping the same compass setting, put the compass point on R. Draw an arc to locate point T.
- Step Five: Draw ST

- **Constructing the Perpendicular Bisector –**
- Step One: Put the compass on point A and draw a long arc. Be sure the opening is greater than ½ AB.
- Step Two: With the same compass setting, put the compass point on point B and draw another long arc. Label the points where the two arcs intersect as X and Y.
- Step Three: Draw XY. Label the point of intersection of AB and XY as M, the midpoint of AB.

- **Constructing the Angle Bisector –**
- Step One: Put the compass point on vertex A. Draw an arc that intersects the sides of A. Label the points of intersection B and C.
- Step Two: Put the compass on point C and draw an arc. With the same compass setting, draw an arc using point B. Be sure the arcs intersect. Label the point where the two arcs intersect at D.
- Step Three: Draw AD.

2-1

Inductive reasoning

Inductive reasoning is a type of reasoning that reaches conclusions based on a pattern of specific examples or past events.

Example You see four people walk into a building. Each person emerges with a small bag containing food. You use inductive reasoning to conclude that this building contains a restaurant.

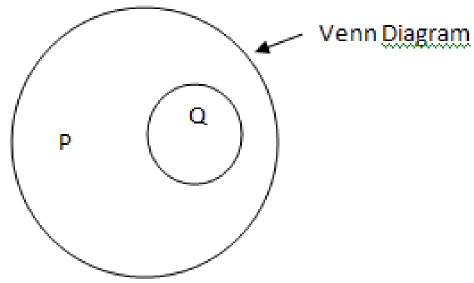
Counterexample

An example showing that a statement is false.

Example Statement All apples are red.

Counterexample A Granny Smith apple is green.

- A conditional is an if-then statement
  - p→q Read as "if p then q" or "p implies q"
  - Hypothesis follows "if", part "p"
  - Conclusion follows "then", part "q"



take note

Key Concept Related Conditional Statements

Statement	How to Write It	Example	Symbols	How to Read It
Conditional	Use the given hypothesis and conclusion.	If $m\angle A = 15$, then $\angle A$ is acute.	$p \to q$	If p, then q.
Converse	Exchange the hypothesis and the conclusion.	If $\angle A$ is acute, then $m\angle A = 15$.	$q \to p$	If q, then p.
Inverse	Negate both the hypothesis and the conclusion of the conditional.	If $m\angle A \neq 15$, then $\angle A$ is not acute.	$\sim p \to \sim q$	If not p, then not q.
Contrapositive	Negate both the hypothesis and the conclusion of the converse.	If $\angle A$ is not acute, then $m\angle A \neq 15$.	$\sim q \to \sim p$	If not q, then not p.

Statement	Example	Truth Value
Conditional	If $m\angle A = 15$, then $\angle A$ is acute.	True
Converse	If $\angle A$ is acute, then $m\angle A = 15$.	False
Inverse	If $m\angle A \neq 15$, then $\angle A$ is not acute.	False
Contrapositive	If $\angle A$ is not acute, then $m\angle A \neq 15$.	True

Negation of a statement p is the opposite of the statement.

The ***truth value*** of a conditional is either *true* or *false*.

Deductive Reasoning (Logical Reasoning) - the process of reasoning logically from given statements or facts to a conclusion

take note

Property Law of Detachment

Law

If the hypothesis of a true conditional is true, then the conclusion is true.

Symbols

If	$p \rightarrow q$	is true
and	p	is true,
then	q	is true.

take note

Property Law of Syllogism

Symbols

If	$p \rightarrow q$	is true
and	$q \rightarrow r$	is true,
then	$p \rightarrow r$	is true.

Example

If it is July, then you are on summer vacation.

If you are on summer vacation, then you work at a smoothie shop.

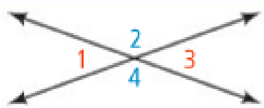
You conclude: If it is July, then you work at a smoothie shop.

take note

Theorem 2-1 Vertical Angles Theorem

Vertical angles are congruent.

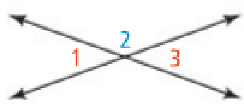
$\angle 1 \cong \angle 3$ and $\angle 2 \cong \angle 4$



Proof Proof of Theorem 2-1: Vertical Angles Theorem

Given: $\angle 1$ and $\angle 3$ are vertical angles.

Prove: $\angle 1 \cong \angle 3$



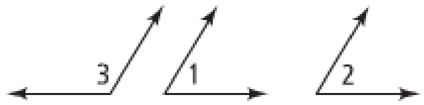
Statements	Reasons
1) $\angle 1$ and $\angle 3$ are vertical angles.	**1)** Given
2) $\angle 1$ and $\angle 2$ are supplementary. $\angle 2$ and $\angle 3$ are supplementary.	**2)** ∠s that form a linear pair are supplementary.
3) $m\angle 1 + m\angle 2 = 180$ $m\angle 2 + m\angle 3 = 180$	**3)** The sum of the measures of supplementary ∠s is 180.
4) $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$	**4)** Transitive Property of Equality
5) $m\angle 1 = m\angle 3$	**5)** Subtraction Property of Equality
6) $\angle 1 \cong \angle 3$	**6)** ∠s with the same measure are ≅.

take note

Theorem 2-2 Congruent Supplements Theorem

Theorem
If two angles are supplements of the same angle (or of congruent angles), then the two angles are congruent.

If . . .
$\angle 1$ and $\angle 3$ are supplements and $\angle 2$ and $\angle 3$ are supplements



Then . . .
$\angle 1 \cong \angle 2$

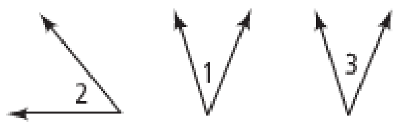
You will prove Theorem 2-2 in Problem 3.

take note

Theorem 2-3 Congruent Complements Theorem

Theorem
If two angles are complements of the same angle (or of congruent angles), then the two angles are congruent.

If . . .
$\angle 1$ and $\angle 2$ are complements and $\angle 3$ and $\angle 2$ are complements



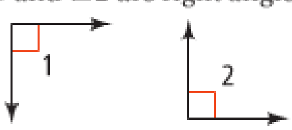
Then . . .
$\angle 1 \cong \angle 3$

You will prove Theorem 2-3 in Exercise 13.

Theorem 2-4

Theorem
All right angles are congruent.

If . . .
$\angle 1$ and $\angle 2$ are right angles



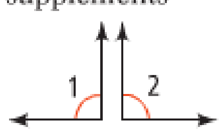
Then . . .
$\angle 1 \cong \angle 2$

You will prove Theorem 2-4 in Exercise 18.

Theorem 2-5

Theorem
If two angles are congruent and supplementary, then each is a right angle.

If . . .
$\angle 1 \cong \angle 2$, and $\angle 1$ and $\angle 2$ are supplements

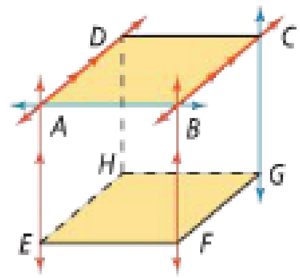


Then . . .
$m\angle 1 = m\angle 2 = 90$

Key Concept Parallel and Skew

Definition	Symbols
Parallel lines are coplanar lines that do not intersect. The symbol ∥ means "is parallel to."	$\overleftrightarrow{AE} \parallel \overleftrightarrow{BF}$ $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$
Skew lines are noncoplanar; they are not parallel and do not intersect.	$\overleftrightarrow{AB}$ and $\overleftrightarrow{CG}$ are skew.
Parallel planes are planes that do not intersect.	plane $ABCD$ ∥ plane $EFGH$

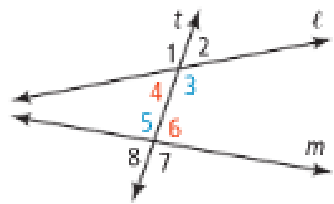
Diagram



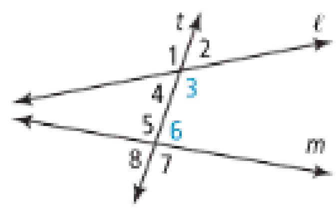
Use arrows to show $\overleftrightarrow{AE} \parallel \overleftrightarrow{BF}$ and $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$.

Key Concept Angle Pairs Formed by Transversals

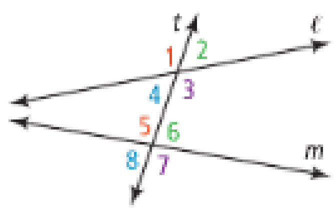
Definition	Example
Alternate interior angles are nonadjacent interior angles that lie on opposite sides of the transversal.	∠4 and ∠6 ∠3 and ∠5



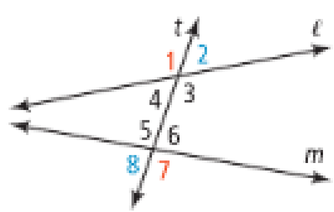
Definition	Example
Same-side interior angles are interior angles that lie on the same side of the transversal.	∠4 and ∠5 ∠3 and ∠6



Definition	Example
Corresponding angles lie on the same side of the transversal t and in corresponding positions.	∠1 and ∠5 ∠4 and ∠8 ∠2 and ∠6 ∠3 and ∠7



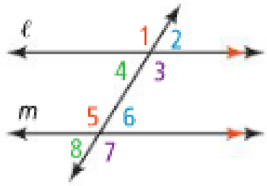
Definition	Example
Alternate exterior angles are nonadjacent exterior angles that lie on opposite sides of the transversal.	∠1 and ∠7 ∠2 and ∠8



Postulate 3-1 Corresponding Angles Postulate

Postulate
If a transversal intersects two parallel lines, then corresponding angles are congruent.

If . . .
$\ell \parallel m$

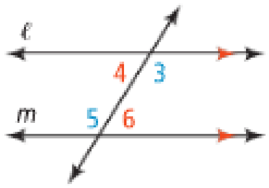


Then . . .
$\angle 1 \cong \angle 5$
$\angle 2 \cong \angle 6$
$\angle 3 \cong \angle 7$
$\angle 4 \cong \angle 8$

Theorem 3-1 Alternate Interior Angles Theorem

Theorem
If a transversal intersects two parallel lines, then alternate interior angles are congruent.

If . . .
$\ell \parallel m$

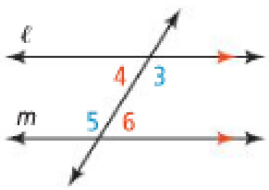


Then . . .
$\angle 4 \cong \angle 6$
$\angle 3 \cong \angle 5$

Theorem 3-2 Same-Side Interior Angles Theorem

Theorem
If a transversal intersects two parallel lines, then same-side interior angles are supplementary.

If . . .
$\ell \parallel m$



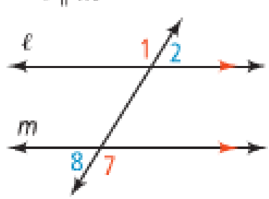
Then . . .
$m\angle 4 + m\angle 5 = 180$
$m\angle 3 + m\angle 6 = 180$

You will prove Theorem 3-2 in Exercise 25.

Theorem 3-3 Alternate Exterior Angles Theorem

Theorem
If a transversal intersects two parallel lines, then alternate exterior angles are congruent.

If . . .
$\ell \parallel m$

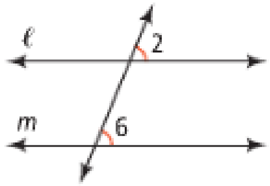


Then . . .
$\angle 1 \cong \angle 7$
$\angle 2 \cong \angle 8$

Postulate 3-2 Converse of the Corresponding Angles Postulate

Postulate
If two lines and a transversal form corresponding angles that are congruent, then the lines are parallel.

If . . .
$\angle 2 \cong \angle 6$

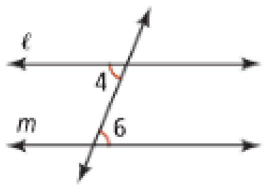


Then . . .
$\ell \parallel m$

Theorem 3-4 Converse of the Alternate Interior Angles Theorem

Theorem
If two lines and a transversal form alternate interior angles that are congruent, then the two lines are parallel.

If . . .
$\angle 4 \cong \angle 6$

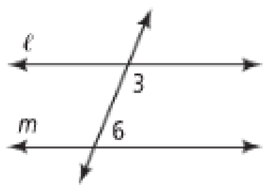


Then . . .
$\ell \parallel m$

Theorem 3-5 Converse of the Same-Side Interior Angles Theorem

Theorem
If two lines and a transversal form same-side interior angles that are supplementary, then the two lines are parallel.

If . . .
$m\angle 3 + m\angle 6 = 180$



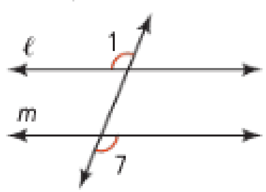
Then . . .
$\ell \parallel m$

You will prove Theorem 3-5 in Exercise 29.

Theorem 3-6 Converse of the Alternate Exterior Angles Theorem

Theorem
If two lines and a transversal form alternate exterior angles that are congruent, then the two lines are parallel.

If . . .
$\angle 1 \cong \angle 7$



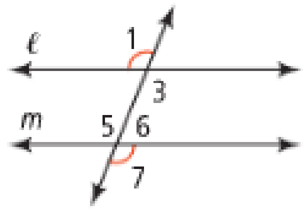
Then . . .
$\ell \parallel m$

The proof of the Converse of the Alternate Interior Angles Theorem below looks different than any proof you have seen so far in this course. You know two forms of proof—paragraph and two-column. In a third form, called **flow proof**, arrows show the logical connections between the statements. Reasons are written below the statements.

Problem 2 Writing a Flow Proof of Theorem 3-6

Given: $\angle 1 \cong \angle 7$

Prove: $\ell \parallel m$



Know

- $\angle 1 \cong \angle 7$

From the diagram you know

- $\angle 1$ and $\angle 3$ are vertical
- $\angle 5$ and $\angle 7$ are vertical
- $\angle 1$ and $\angle 5$ are corresponding
- $\angle 3$ and $\angle 7$ are corresponding

Need

One pair of corresponding angles congruent to prove $\ell \parallel m$

Plan

Use a pair of congruent vertical angles to relate either $\angle 1$ or $\angle 7$ to its corresponding angle.

take note — Key Concept: Properties of Equality

Let a, b, and c be any real numbers.

Addition Property	If $a = b$, then $a + c = b + c$.
Subtraction Property	If $a = b$, then $a - c = b - c$.
Multiplication Property	If $a = b$, then $a \cdot c = b \cdot c$.
Division Property	If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.
Reflexive Property	$a = a$
Symmetric Property	If $a = b$, then $b = a$.
Transitive Property	If $a = b$ and $b = c$, then $a = c$.
Substitution Property	If $a = b$, then b can replace a in any expression.

take note — Key Concept: The Distributive Property

Use multiplication to distribute a to each term of the sum or difference within the parentheses.

Sum:
$a(b + c) = a(b + c) = ab + ac$

Difference:
$a(b - c) = a(b - c) = ab - ac$

take note — Key Concept: Properties of Congruence

Reflexive Property	$\overline{AB} \cong \overline{AB}$ $\quad \angle A \cong \angle A$
Symmetric Property	If $\overline{AB} \cong \overline{CD}$, then $\overline{CD} \cong \overline{AB}$. If $\angle A \cong \angle B$, then $\angle B \cong \angle A$.
Transitive Property	If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$. If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$. If $\angle B \cong \angle A$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

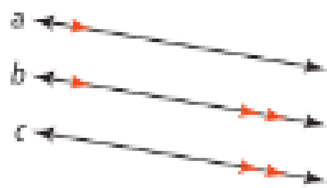
Theorem 3-7

Theorem

If two lines are parallel to the same line, then they are parallel to each other.

If . . .

$a \parallel b$ and $b \parallel c$



Then . . .

$a \parallel c$

You will prove Theorem 3-7 in Exercise 7.

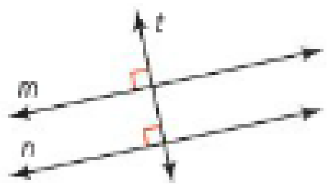
Theorem 3-8

Theorem

In a plane, if two lines are perpendicular to the same line, then they are parallel to each other.

If . . .

$m \perp t$ and $n \perp t$



Then . . .

$m \parallel n$

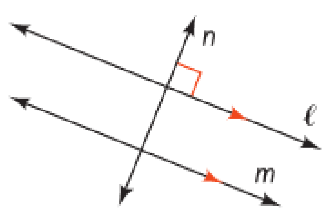
Theorem 3-9 Perpendicular Transversal Theorem

Theorem

In a plane, if a line is perpendicular to one of two parallel lines, then it is also perpendicular to the other.

If . . .

$n \perp \ell$ and $\ell \parallel m$



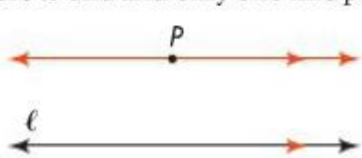
Then . . .

$n \perp m$

You will prove Theorem 3-9 in Exercise 10.

Postulate 3-3 Parallel Postulate

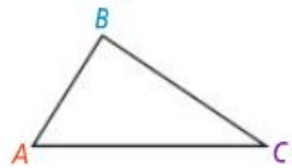
Through a point not on a line, there is one and only one line parallel to the given line.



There is exactly one line through P parallel to ℓ.

Theorem 3-10 Triangle Angle-Sum Theorem

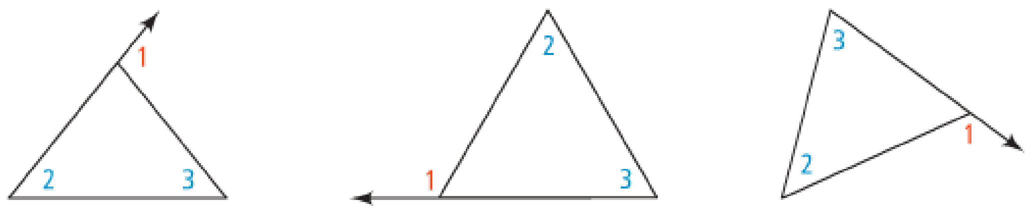
The sum of the measures of the angles of a triangle is 180.



$$m\angle A + m\angle B + m\angle C = 180$$

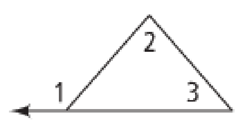
Auxiliary Line – is a line that you add to a diagram to explain the relationships in proofs**.**

An **exterior angle of a polygon** is an angle formed by a side and an extension of an adjacent side. For each exterior angle of a triangle, the two nonadjacent interior angles are its **remote interior angles.** In each triangle below, $\angle 1$ is an exterior angle and $\angle 2$ and $\angle 3$ are its remote interior angles.



Theorem 3-11 Triangle Exterior Angle Theorem

The measure of each exterior angle of a triangle equals the sum of the measures of its two remote interior angles.

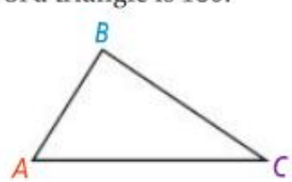


$$m\angle 1 = m\angle 2 + m\angle 3$$

You will prove Theorem 3-11 in Exercise 33.

Theorem 3-10 Triangle Angle-Sum Theorem

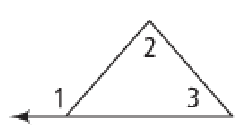
The sum of the measures of the angles of a triangle is 180.



$$m\angle A + m\angle B + m\angle C = 180$$

Theorem 3-11 Triangle Exterior Angle Theorem

The measure of each exterior angle of a triangle equals the sum of the measures of its two remote interior angles.



$$m\angle 1 = m\angle 2 + m\angle 3$$

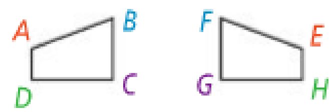
You will prove Theorem 3-11 in Exercise 33.

Key Concept Congruent Figures

Definition

Congruent polygons have congruent corresponding parts—their matching sides and angles. When you name congruent polygons, you must list corresponding vertices in the same order.

Example



$ABCD \cong EFGH$

$\overline{AB} \cong \overline{EF}$ $\overline{BC} \cong \overline{FG}$

$\overline{CD} \cong \overline{GH}$ $\overline{DA} \cong \overline{HE}$

$\angle A \cong \angle E$ $\angle B \cong \angle F$

$\angle C \cong \angle G$ $\angle D \cong \angle H$

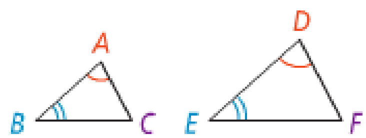
Theorem 4-1 Third Angles Theorem

Theorem

If two angles of one triangle are congruent to two angles of another triangle, then the third angles are congruent.

If . . .

$\angle A \cong \angle D$ and $\angle B \cong \angle E$

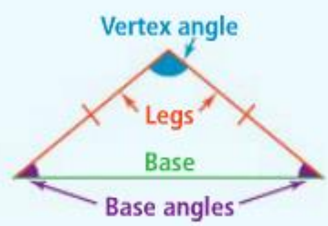


Then . . .

$\angle C \cong \angle F$

triangles have special relationships.

Isosceles triangles are common in the real world. You can frequently see them in structures such as bridges and buildings, as well as in art and design. The congruent sides of an isosceles triangle are its **legs.** The third side is the **base.** The two congruent legs form the **vertex angle.** The other two angles are the **base angles.**



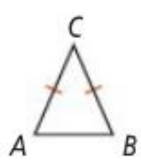
Theorem 4-3 Isosceles Triangle Theorem

Theorem

If two sides of a triangle are congruent, then the angles opposite those sides are congruent.

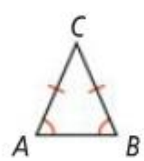
If . . .

$\overline{AC} \cong \overline{BC}$



Then . . .

$\angle A \cong \angle B$



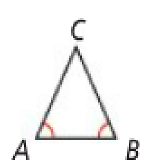
Theorem 4-4 Converse of the Isosceles Triangle Theorem

Theorem

If two angles of a triangle are congruent, then the sides opposite those angles are congruent.

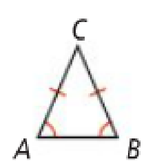
If . . .

$\angle A \cong \angle B$



Then . . .

$\overline{AC} \cong \overline{BC}$



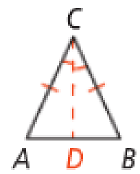
You will prove Theorem 4-4 in Exercise 23.

take note

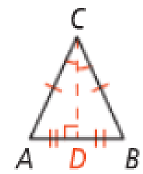
Theorem 4-5

Theorem
If a line bisects the vertex angle of an isosceles triangle, then the line is also the perpendicular bisector of the base.

If . . .
$\overline{AC} \cong \overline{BC}$ and $\angle ACD \cong \angle BCD$



Then . . .
$\overline{CD} \perp \overline{AB}$ and $\overline{AD} \cong \overline{BD}$



You will prove Theorem 4-5 in Exercise 26.

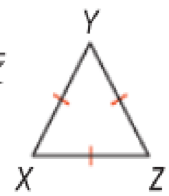
A **corollary** is a theorem that can be proved easily using another theorem. Since a corollary is a theorem, you can use it as a reason in a proof.

take note

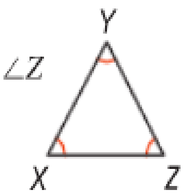
Corollary to Theorem 4-3

Corollary
If a triangle is equilateral, then the triangle is equiangular.

If . . .
$\overline{XY} \cong \overline{YZ} \cong \overline{ZX}$



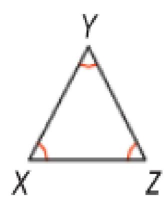
Then . . .
$\angle X \cong \angle Y \cong \angle Z$



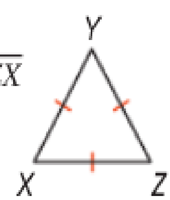
Corollary to Theorem 4-4

Corollary
If a triangle is equiangular, then the triangle is equilateral.

If . . .
$\angle X \cong \angle Y \cong \angle Z$



Then . . .
$\overline{XY} \cong \overline{YZ} \cong \overline{ZX}$

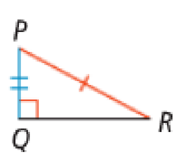


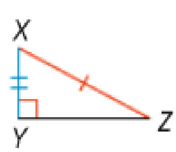
take note

Theorem 4-6 Hypotenuse-Leg (HL) Theorem

Theorem
If the hypotenuse and a leg of one right triangle are congruent to the hypotenuse and a leg of another right triangle, then the triangles are congruent.

If . . .
$\triangle PQR$ and $\triangle XYZ$ are right $\triangle$s,
$\overline{PR} \cong \overline{XZ}$, and $\overline{PQ} \cong \overline{XY}$



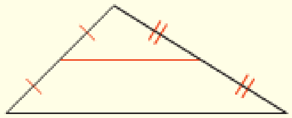


Then . . .
$\triangle PQR \cong \triangle XYZ$

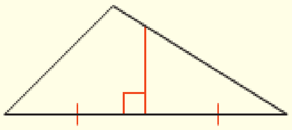
Special Segments in Triangles

Five special segments are defined in this chapter.

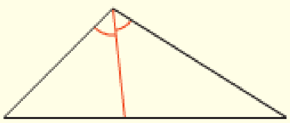
Midsegment is a segment that connects the midpoints of two sides.



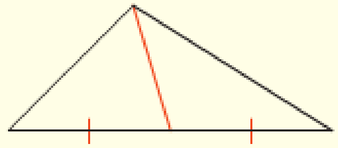
Perpendicular Bisector is a segment that bisects a side and is perpendicular to that side.



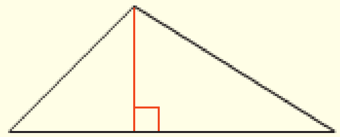
Angle Bisector is a segment that bisects an angle.



Median is a segment that connects a vertex to the midpoint of the opposite side.

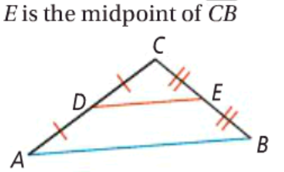


Altitude is a segment from a vertex, perpendicular to the opposite side.



Triangle Midsegment Theorem

- Theorem: If a segment joins the midpoints of two sides of a triangle, then the segment is parallel to the third side and is half as long.
- If.... D is the midpoint of $\overline{CA}$ and E is the midpoint of $\overline{CB}$

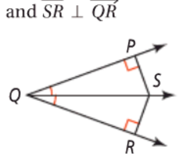


- Then... $\overline{DE} \parallel \overline{AB}$ and $DE = \frac{1}{2}AB$

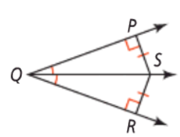
Angle Bisector Theorem

Theorem
If a point is on the bisector of an angle, then the point is equidistant from the sides of the angle.

If . . .
$\overrightarrow{QS}$ bisects $\angle PQR$, $\overline{SP} \perp \overrightarrow{QP}$, and $\overline{SR} \perp \overrightarrow{QR}$



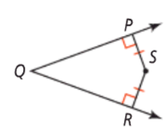
Then . . .
$SP = SR$



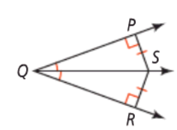
Converse of the Angle Bisector Theorem

Theorem
If a point in the interior of an angle is equidistant from the sides of the angle, then the point is on the angle bisector.

If . . .
$\overline{SP} \perp \overrightarrow{QP}$, $\overline{SR} \perp \overrightarrow{QR}$, and $SP = SR$



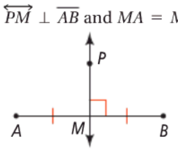
Then . . .
$\overrightarrow{QS}$ bisects $\angle PQR$



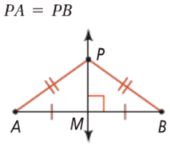
Perpendicular Bisector Theorem

Theorem
If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.

If . . .
$\overleftrightarrow{PM} \perp \overline{AB}$ and $MA = MB$



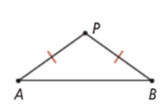
Then . . .
$PA = PB$



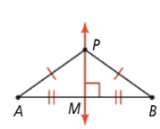
Converse of the Perpendicular Bisector Theorem

Theorem
If a point is equidistant from the endpoints of a segment, then it is on the perpendicular bisector of the segment.

If . . .
$PA = PB$

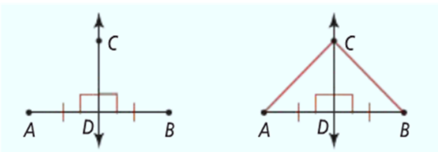


Then . . .
$\overleftrightarrow{PM} \perp \overline{AB}$ and $MA = MB$



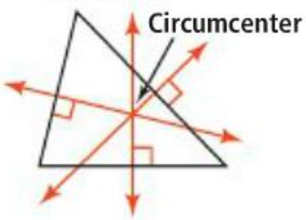
Special Relationship

- What is the relationship between the points on the perpendicular bisector of a segment and the endpoints of the segment?

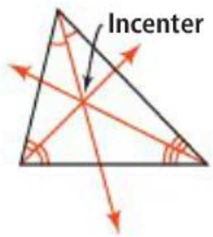


Concept Summary Special Segments and Lines in Triangles

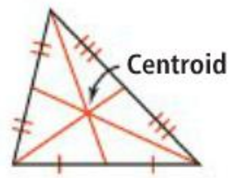
Perpendicular Bisectors



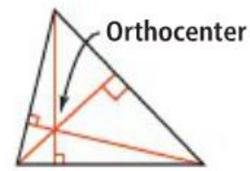
Angle Bisectors



Medians

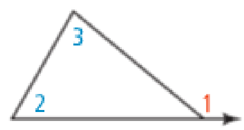


Altitudes



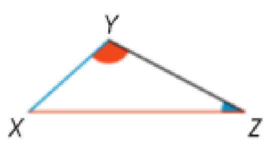
Corollary Corollary to the Triangle Exterior Angle Theorem

Corollary	If . . .	Then . . .
The measure of an exterior angle of a triangle is greater than the measure of each of its remote interior angles.	$\angle 1$ is an exterior angle	$m\angle 1 > m\angle 2$ and $m\angle 1 > m\angle 3$



Theorem 5-10

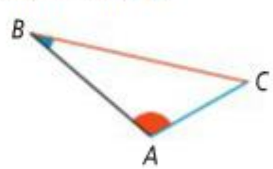
Theorem	If . . .	Then . . .
If two sides of a triangle are not congruent, then the larger angle lies opposite the longer side.	$XZ > XY$	$m\angle Y > m\angle Z$



You will prove Theorem 5-10 in Exercise 40.

Theorem 5-11

Theorem	If . . .	Then . . .
If two angles of a triangle are not congruent, then the longer side lies opposite the larger angle.	$m\angle A > m\angle B$	$BC > AC$

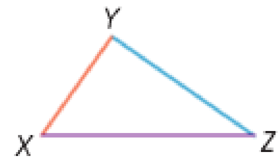


take note

Theorem 5-12 Triangle Inequality Theorem

The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

$XY + YZ > XZ$ $YZ + XZ > XY$ $XZ + XY > YZ$



You will prove Theorem 5-12 in Exercise 45.

take note

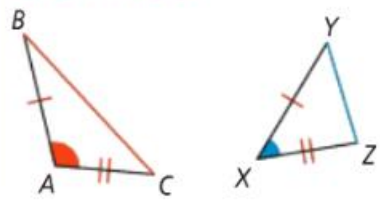
Theorem 5-13 The Hinge Theorem (SAS Inequality Theorem)

Theorem

If two sides of one triangle are congruent to two sides of another triangle, and the included angles are not congruent, then the longer third side is opposite the larger included angle.

If . . .

$m\angle A > m\angle X$



Then . . .

$BC > YZ$

take note

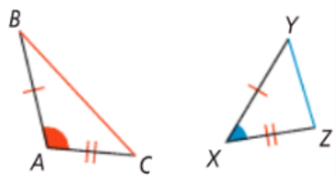
Theorem 5-14 Converse of the Hinge Theorem (SSS Inequality)

Theorem

If two sides of one triangle are congruent to two sides of another triangle, and the third sides are not congruent, then the larger included angle is opposite the longer third side.

If . . .

$BC > YZ$



Then . . .

$m\angle A > m\angle X$

Postulates:

- Segment Addition Postulate
- Angle Addition Postulate
- Linear Pair Postulate
- Parallel Postulate

Formulas:

- Midpoint Formula
  $(\frac{x1+x2}{2}, \frac{y1+y2}{2})$
- Distance Formula
  $\sqrt{(x2 - x1)2 + (y2 - y1)2}$
- Slope Formula
  $m = \frac{y2 - y1}{x2 - x1}$

Equations of Lines:

- Slope-Intercept Form
  $y = mx + b$
- Point-Slope Form
  $y - y_1 = m(x - x_1)$

Properties:

- Addition Property
- Subtraction Property
- Multiplication Property
- Division Property
- Reflexive Property
- Symmetric Property
- Transitive Property
- Substitution Property
- Distributive Property

Theorems (Angle Pairs):

- Alternate Interior Angles Theorem

- Same-Side Interior Angles Theorem
- Corresponding Angles Postulate
- Alternate Exterior Angles Theorem
- Converse of the Alternate Interior Angles Theorem
- Converse of the Same-Side Interior Angles Theorem
- Converse of the Corresponding Angles Postulate
- Converse of the Alternate Exterior Angles Theorem
- Vertical Angles Theorem
- Congruent Supplements Theorem
- Congruent Complements Theorem

Triangles :

- Triangle-Sum Theorem
- Triangle Exterior Angle Theorem
- Third Angles Theorem
- Side-Side-Side Postulate
- Side-Angle-Side Postulate
- Angle-Side-Angle Postulate
- Angle-Angle-Side Postulate
- Congruent Parts of Congruent Triangles are Congruent (CPCTC)
- Hypotenuse Leg (HL) Theorem
- SSS, SAS, ASA, AAS
- Isosceles Triangle Theorem
- Converse of the Isosceles Triangle Theorem
- Triangle Midsegment Theorem
- Perpendicular Bisector Theorem
- Converse of the Perpendicular Bisector Theorem
- Angle Bisector Theorem
- Converse of the Angle Bisector Theorem
- Concurrency of Perpendicular Bisector Theorem
- Concurrency of Angle Bisector Theorem
- Concurrency of Medians Theorem
- Concurrency of Altitudes Theorem

Inequalities

- Comparison Property of Inequality
- Corollary to the Triangle Exterior Angle Theorem

- Theorem 5-10
- Theorem 5-11
- Theorem 5-12 (Triangle Inequality Theorem)
- Hinge Theorem
- Converse of the Hinge Theorem