

Chapter 2 Toolkit

Tuesday, September 7, 2021 8:53 AM



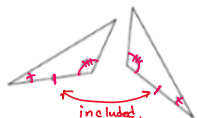
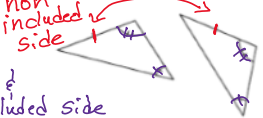
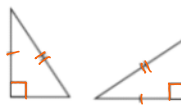


IM 2
Chapter 2...

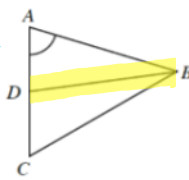
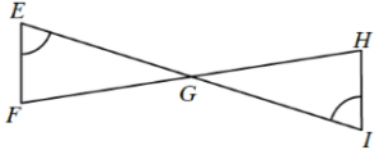
Chapter 2 Toolkits

Triangle Congruence Theorems (2.1.1)

Name _____

<p>Side-Side-Side</p> <p>$SSS \cong$</p> <p>3 sides \cong 3 sides</p> 	<p>Side-Angle-Side</p> <p>$SAS \cong$</p> <p>2 sides & included \angle \cong 2 sides & included \angle</p> 
<p>Angle-Side-Angle</p> <p>$ASA \cong$</p> <p>2 \angle's & included side \cong 2 \angle's & included side</p> 	<p>Angle-Angle-Side (SAA)</p> <p>$AAS \cong$</p> <p>2 \angle's & non included side \cong 2 \angle's & non included side</p> 
<p>Hypotenuse-Leg</p> <p>$HL \cong$</p> 	<p>NOT Triangle Congruence Theorem</p> <p>AAA</p> <p>ASS/SSA</p>

Properties of Congruence (2.1.2)

<p>Reflexive – a.k.a. <u>shared side</u> or <u>shared angle</u></p> <p>Shared side, Shared angle</p> 	<p>Symmetric</p>	<p>Transitive</p>
		

Conditional Statements and Converses (2.1.3; 2-23 to 2-25)

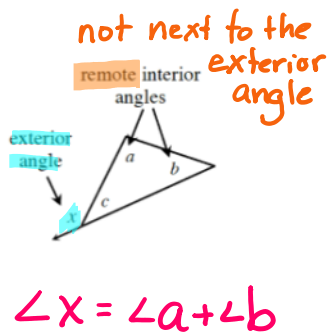
In a **conditional statement**, the 'if' portion of the statement is called the hypothesis.

The 'then' portion is called the Conclusion. If you reverse the order of the hypothesis and the conclusion, you create the Converse of the statement.

Example:
 Conditional Statement:
 If today is Wednesday, then yesterday was Tuesday. True!

Converse:
 If yesterday was Tuesday, then today is Wednesday. True!

Exterior Angle Theorem (2.1.3; 2-29)



If $\angle x + \angle c = 180$ by linear pair/supple \angle 's / 180° in line,

and $\angle a + \angle b + \angle c = 180^\circ$ by Triangle \angle Sum thm / 180° in Δ , then $\angle x$ must equal

$\angle x = \angle a + \angle b$ by Substitution.

This is called the Exterior Angle Theorem.

It states that, the measure of an exterior angle of a triangle equals...
the sum of the remote interior angles.

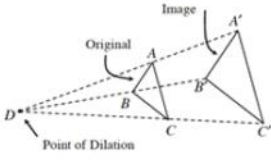
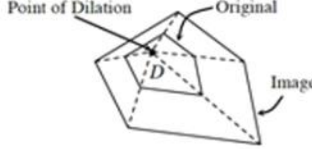
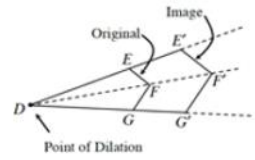
Solving Systems of Equations (2.1.3)

Equal Value Method	Substitution Method	Elimination Method
$y = 2x - 7$ $y = 5x - 16$	$-3x + y = -6$ $x = y - 4$	$3x + 2y = 11$ $7x + 3y = 29$
Set equations equal to each other and solve for the variable.	Substitute one equation into the other:	Rewrite one or both equations by multiplying by a constant so that one of the variables will be eliminated. Multiply top equation by _____ Multiply bottom equation by _____
Go back to one of the original equations, substitute, and solve for the other variable.	Go back to one of the original equations, substitute and solve for the other variable.	Go back to one of the original equations, substitute, and solve for the other variable.
Check both x and y in the other equation.	Check both x and y in the other equation.	Check both x and y in the other equation.
Write your solution as an ordered pair.	Write your solution as an ordered pair.	Write your solution as an ordered pair.

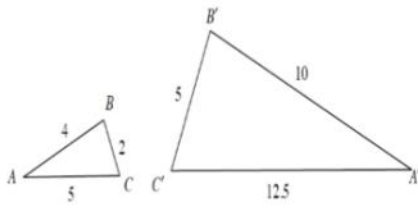
Chapter 2 Toolkits

Dilations (2.2.2)

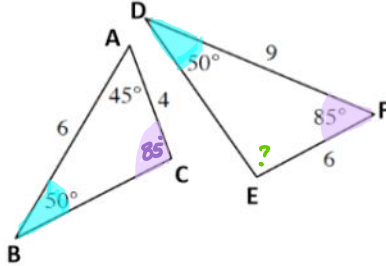
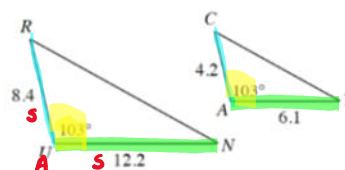
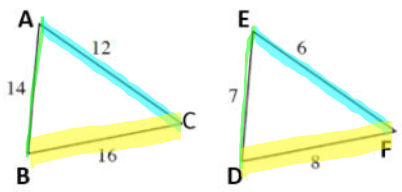
Name _____

 <p>Definition:</p>	<p>If the point of dilation is located inside the polygon, one polygon will enclose the other.</p> 	<p>If the point of dilation is on a vertex of the original polygon, like in figure DEFG, the image of that vertex remains in the same location. Two sides will always overlap.</p> 
-------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

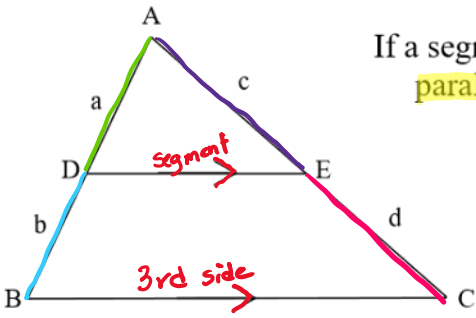
Similar Polygons (2.3.1)

<p>If two polygons are similar,</p>	<p>Similar polygons have</p>	
-------------------------------------	------------------------------	--------------------------------------------------------------------------------------

Complete Conditions for Triangle Similarity (2.3.2)

AA~	SAS~	SSS~
 <p>Angle-Angle Similarity If two pairs of angles are \cong, then the Δ's are Similar.</p>	 <p>Side-Angle-Side Similarity If two pairs of sides of two Δ's are in proportion AND the included angles are \cong, then the Δ's are similar.</p> $\frac{8.4}{4.2} = \frac{12.2}{6.1}$ $\frac{84}{42} = \frac{122}{61}$ $\frac{2}{1} = \frac{2}{1} \checkmark$	 <p>Side-Side-Side Similarity If 3 pairs of sides of two Δ's are in proportion, then the Δ's are similar.</p> $\frac{12}{6} = \frac{14}{7} = \frac{16}{8}$ $\frac{2}{1} = \frac{2}{1} = \frac{2}{1} \checkmark$

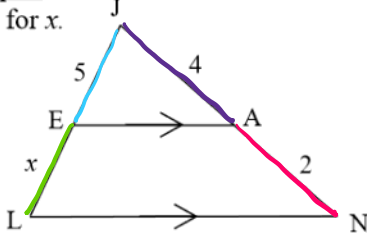
Side Splitter Theorem (2-110)



If a segment intersects two sides of a triangle and is **parallel** to the third side, then the lengths of the parts are proportional.

$$\frac{a}{b} = \frac{c}{d} \qquad \frac{a}{c} = \frac{b}{d}$$

Example:
Solve for x.


$$\frac{5}{x} = \frac{4}{2}$$
$$\frac{4x}{4} = \frac{10}{4}$$
$$x = \frac{10}{4} = \frac{5}{2} = 2.5$$

$\cong \Delta$'s \rightarrow \cong parts

If Congruent triangles, then congruent parts

This can be used as a reason in a proof to explain why parts are congruent **AFTER** you prove Δ 's are congruent. Usually at the end of the proof.