

Geometry

Name: _____

Unit 3 Agenda - Congruent Triangles - PACKET #1

DATE	DAY	LESSON	PAGES	HOMEWORK
TUES 9/20	3.1	Prerequisite Skills	2 – 3	DeltaMath 3.1 due 10/7 @ 8:20AM
WED 9/21	3.2	Triangle Angles and Base Angles (no x-block)	4 – 5	DM
THURS 9/22	3.3	Exterior Angles	6 – 7	DM
FRI 9/23	3.4	TITD & Practice Day (x-block)	-----	
FALL BREAK September 27th - October 1st				
MON 10/3	3.5	Triangle Congruence SSS & HL	8 – 9	DM
TUES 10/4	3.6	Triangle Congruence SAS, ASA, AAS	10 – 11	DM
WED 10/5	3.7	Triangle Congruence Card Sort	-----	DM
THURS 10/6	3.8	Quiz Review	12 – 13	Quiz Review and DM due tomorrow!
FRI 10/7	3.9	Quiz today! Good luck!!	-----	
MON 10/10	3.10	(PACKET #2) Congruency Proofs		HW IN PACKET PAGE 6
TUES 10/11	3.11	CPCTC		HW IN PACKET PAGES 10 & 11
WED 10/12		PSAT DAY! & Practice		
THURS 10/13	3.12	Congruency Proofs Book		FINISH PAGES 6, 10, & 11
FRI 10/14	3.13	Quiz Review		Quiz Review and HW due tomorrow!
MON 10/17	3.14	Quiz today! Good luck!!	-----	
TUES 10/18	3.15	Medians & Centroids & Maze Practice		
WED 10/19	3.16	Putting It All Together		Start Test Review
THURS 10/20	3.17	Test Review		Test Review due tomorrow!
FRI 10/21	3.18	TEST TODAY!! GOOD LUCK!!!	-----	

Agenda is subject to change!!!

Quick Geometry Vocabulary Review

Term	Definition	Notation
point	An exact position or location in a given plane.	
L↕NE	The set of points between points A and B in a plane and the infinite number of points that continue beyond the points.	
SEGMENT	A line with two endpoints.	
RAY	A line that starts at A, goes through B, and continues on.	
Plane	A flat, two-dimensional surface that extends infinitely far.	
ANGLE	Formed by 2 rays coming together at a common point (Vertex)	
Parallel Lines	Lines in a plane that do not meet (they do not intersect).	
Perpendicular Lines	Two lines that meet (or intersect) at 90 degree angles (right angles).	

Types of Angles

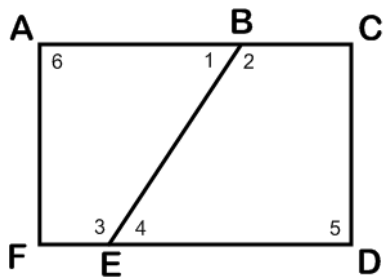
TYPE OF ANGLE	MEASUREMENT	SKETCH
ACUTE		
RIGHT		
OBTUSE		
STRAIGHT		

Classwork – Fill in the blanks with the appropriate definition and notation.

	<u>definition</u>	<u>notation</u>
1. Parallel Lines	_____	_____
2. Line Segment	_____	_____
3. Circle	_____	_____
4. Point	_____	_____
5. Perpendicular Lines	_____	_____
6. Ray	_____	_____
7. Angle	_____	_____

A. part of a line bounded by two distinct endpoints	
B. formed where two lines or rays share an endpoint	
C. a portion of a line that starts at a point and continues to infinity	
D. two lines that have unique points and never cross	
E. the set of points on a plane at a certain distance, or radius from a single point, the center	
F. creates four right angles	
G. an exact position or location in a given plane	
<hr/>	
1. $AB \parallel CD$	2. $AB \perp CD$
3. $\odot B$	4. \overline{AB}
5. \overline{AB}	6. $\angle ABC$
7. A	

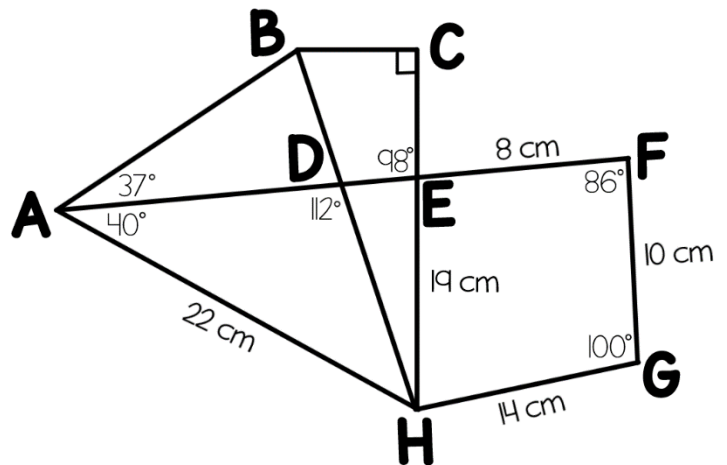
Name the following angles with the correct notation.



8. $\angle 1$ _____ 9. $\angle 2$ _____ 10. $\angle 3$ _____
 11. $\angle 4$ _____ 12. $\angle 5$ _____ 13. $\angle 6$ _____

Use the diagram on the right to answer to following questions.

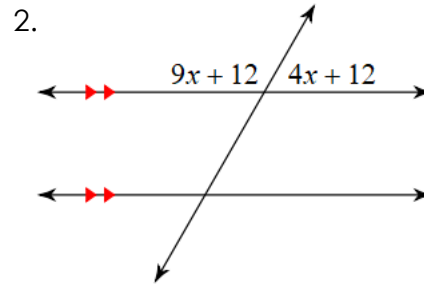
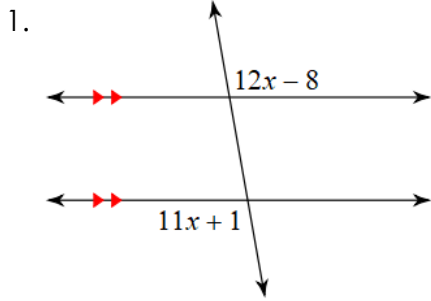
14. $m\angle BAD =$ _____ 15. $m\angle BAH =$ _____
 16. $m\angle ADH =$ _____ 17. $m\angle BCE =$ _____
 18. $m\angle FEH =$ _____ 19. $m\angle EDH =$ _____
 20. Name the 100 degree angle: _____
 21. Name the 98 degree angle: _____
 22. What is another name for $\angle EFG$? _____
 23. $\overline{EH} =$ _____ cm 24. $\overline{FG} =$ _____ cm
 25. Name the 22 cm segment: _____
 26. Name the 8 cm segment: _____



Geometry – DAY 3.2
Triangle Angles

Name: _____
 Date: _____

WARM-UP:



TRIANGLE SUM

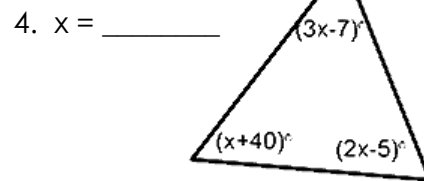
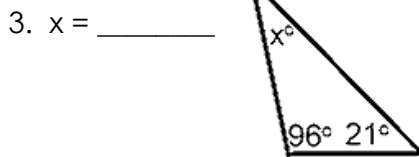
The sum of the measures of the interior angles of a triangle is _____°.

Find the missing angle measure that would make a triangle.

1. Angle A: 72 degrees
 Angle B: 63 degrees
 Angle C: _____

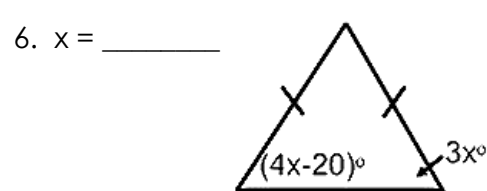
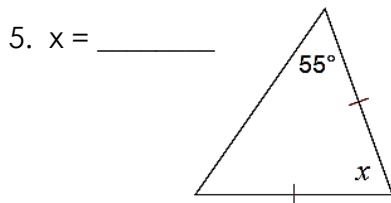
2. Angle D: _____
 Angle E: 119 degrees
 Angle F: 13 degrees

Find the value of x in each figure.

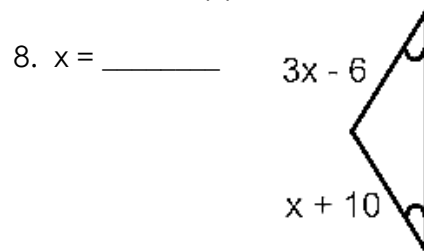
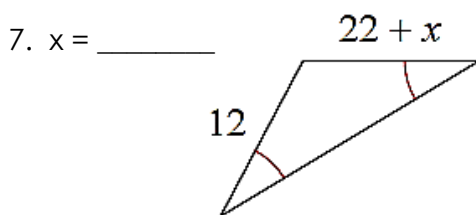


Isosceles Triangles & Base Angles

If two **sides** of a triangle are congruent, then the _____ of those sides are _____.



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



PRACTICE!!! Classwork!

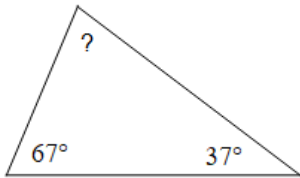
Find the missing angle measure that would make a triangle.

1. Angle A: 108 degrees
 Angle B: 32 degrees
 Angle C: _____

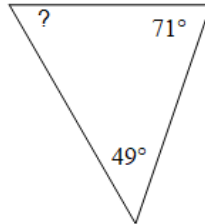
2. Angle D: _____
 Angle E: 57 degrees
 Angle F: 57 degrees

Solve for the missing angle or x.

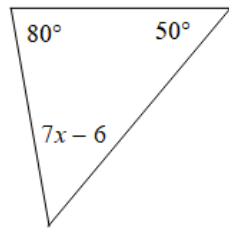
3. $\angle =$ _____



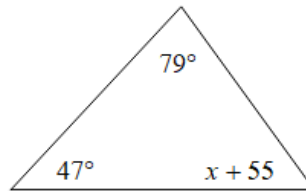
4. $\angle =$ _____



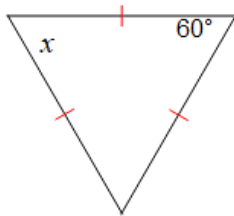
5. $x =$ _____



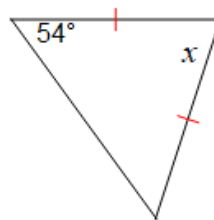
6. $x =$ _____



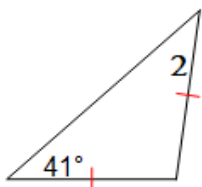
7. $x =$ _____



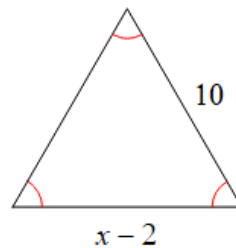
8. $x =$ _____



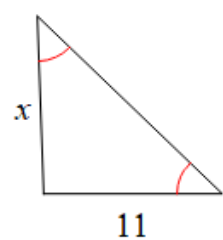
9. $x =$ _____
 $m\angle 2 = x + 48$



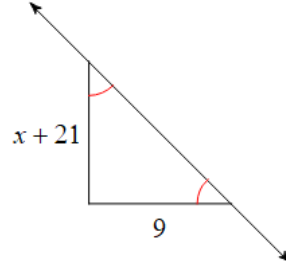
10. $x =$ _____



11. $x =$ _____



12. $x =$ _____



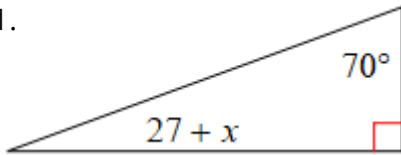
Geometry – DAY 3.3
Exterior Angles

Name: _____

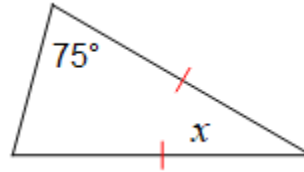
Date: _____

WARM-UP: Solve for x.

1.



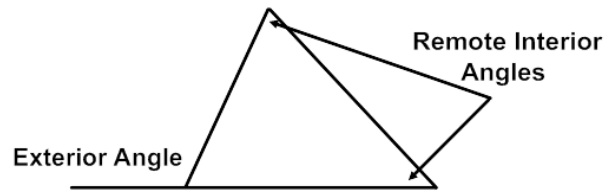
2.



Notes:

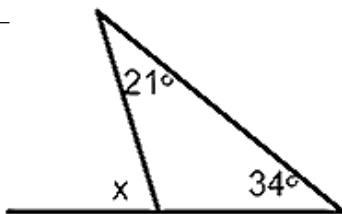
EXTERIOR ANGLE THEOREM

The measure of an exterior angle of a triangle is equal to the _____ of the measures of the two remote interior angles.

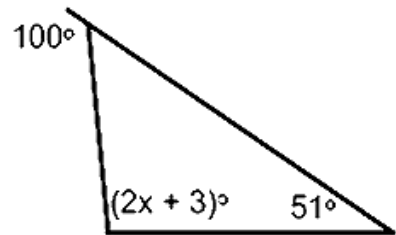


Find the value of x in each figure.

1. x = _____



2. x = _____



Find the value of each numbered angle.

3. $m\angle 1 =$ _____

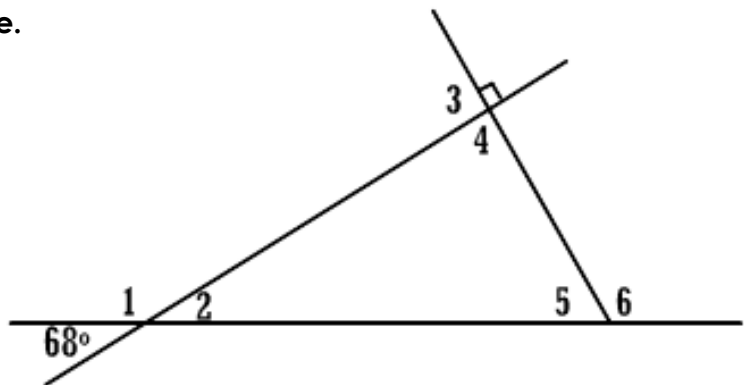
4. $m\angle 2 =$ _____

5. $m\angle 3 =$ _____

6. $m\angle 4 =$ _____

7. $m\angle 5 =$ _____

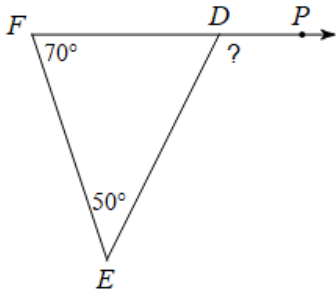
8. $m\angle 6 =$ _____



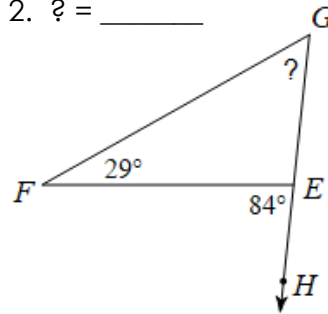
CLASSWORK PRACTICE

Find the missing angle.

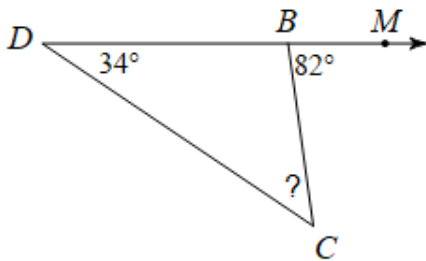
1. $\angle =$ _____



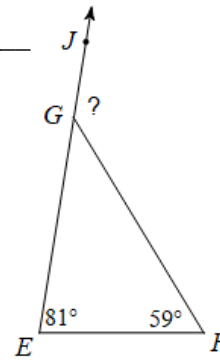
2. $\angle =$ _____



3. $\angle =$ _____

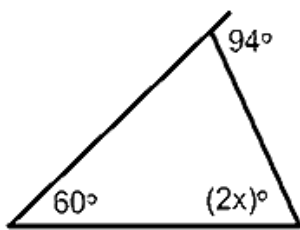


4. $\angle =$ _____

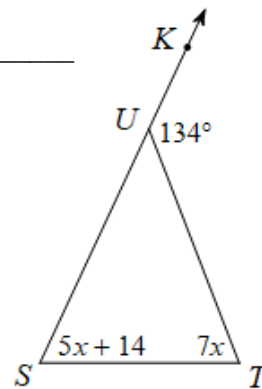


Solve for x .

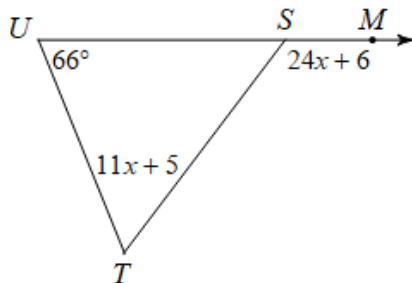
5. $x =$ _____



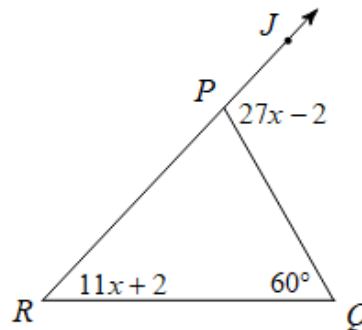
6. $x =$ _____



7. $x =$ _____



8. $x =$ _____

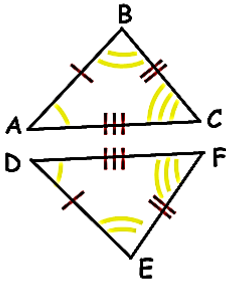


_____ have congruent sides and congruent angles.

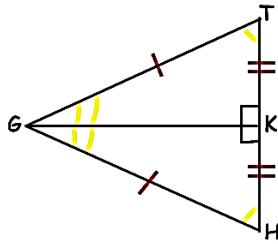
The parts of congruent triangles that “match” are called _____.

Complete the congruence statement for the following.

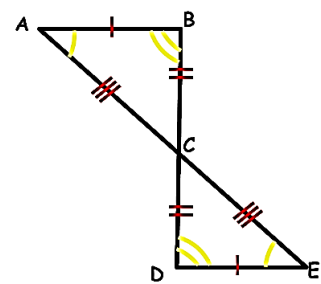
$\triangle ABC \cong \triangle$ _____



$\triangle GHK \cong \triangle$ _____



$\triangle ACB \cong \triangle$ _____



Example: Given $\triangle ABC \cong \triangle DEF$

Make six congruence statements about the corresponding parts.

Mark the diagrams with hash marks and arcs to identify congruent parts.

$\angle A \cong$ _____

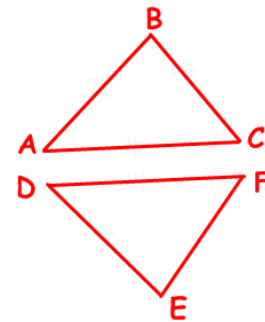
$\overline{AB} \cong$ _____

$\angle B \cong$ _____

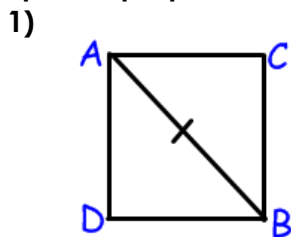
$\overline{AC} \cong$ _____

$\angle C \cong$ _____

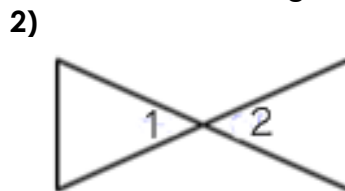
$\overline{BC} \cong$ _____



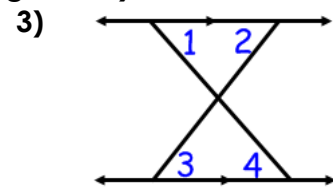
Special properties to remember: (you can add these markings to your diagrams!!!)



$\overline{AB} \cong$ _____ by Reflexive Property



$\angle 1 \cong \angle 2$ because _____



$\angle 1 \cong \angle$ _____ $\angle 2 \cong \angle$ _____
 by _____

If we can show just _____ (rather than six) corresponding parts in a _____ are congruent, then that is enough to prove the two triangles are congruent.

SSS

If the three sides of one triangle are congruent to the three sides of a second triangle, then the two triangles are congruent.

Side-Side-Side (SSS)	
$\triangle XYZ \cong \triangle ABC$ 	$\triangle ABC \cong \triangle ADC$

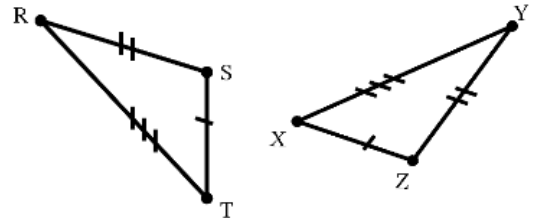
1. In two triangles, $\overline{DF} \cong \overline{UV}$, $\overline{FE} \cong \overline{VW}$ and $\overline{DE} \cong \overline{UW}$.

Write a congruence statement.

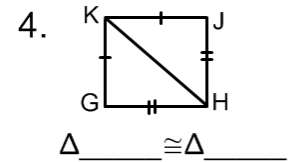
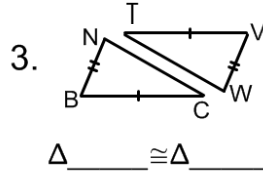
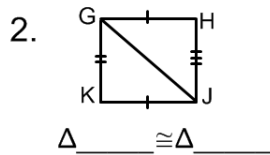
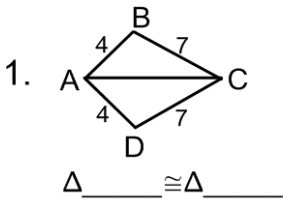
\triangle _____ \cong \triangle _____ by _____

2. Determine whether the triangles are congruent. If they are, write a congruence statement explaining why they are congruent.

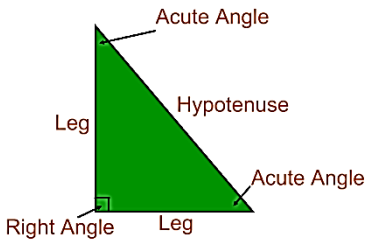
\triangle _____ \cong \triangle _____ by _____



YOU TRY! Are these triangles congruent by SSS? If so, name them. Remember your special properties!



Parts of a Right Triangle



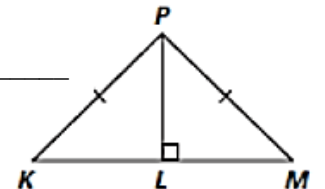
HL

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

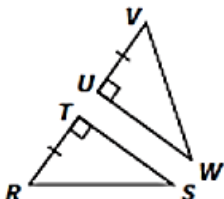
Hypotenuse-Leg (HL)	
$\triangle DEF \cong \triangle CBA$ 	$\triangle NMJ \cong \triangle KMJ$

Can you use HL to prove the two triangles congruent? If yes, write a congruence statement. If not, explain why not.

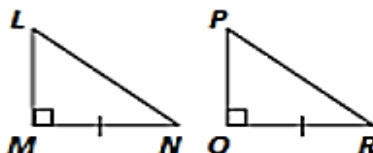
1. _____



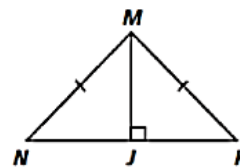
2. _____



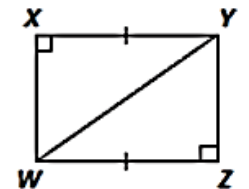
3. _____



4. _____



5. _____



Geometry DAY 3.6

Triangle Congruence: SAS, ASA, and AAS

Name _____

Date _____

Included Angle _____

Name the angle included between \overline{AB} and \overline{BC} _____

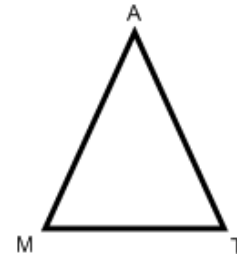
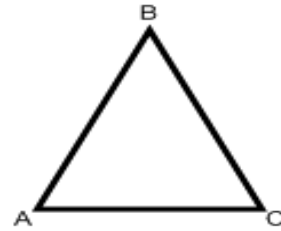
\overline{BC} and \overline{AC} _____ \overline{AC} and \overline{AB} _____

Included Side _____

1. In $\triangle MAT$, which side is included between $\angle A$ and $\angle T$? _____

2. In $\triangle MAT$, which side is included between $\angle M$ and $\angle A$? _____

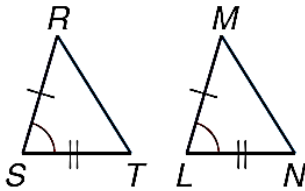
3. Which side is not included between angles A and T? _____



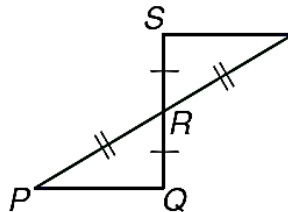
The third, fourth, and fifth congruence theorem:

Side-Angle-Side (SAS)

$\triangle SRT \cong \triangle LMN$



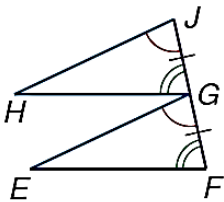
$\triangle SRT \cong \triangle QRP$



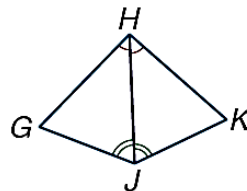
If two sides and the included angle of one triangle are congruent to two sides and the included angle of a second triangle, then the two triangles are congruent.

Angle-Side-Angle (ASA)

$\triangle GHJ \cong \triangle FEG$



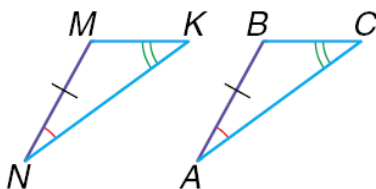
$\triangle GHJ \cong \triangle KHJ$



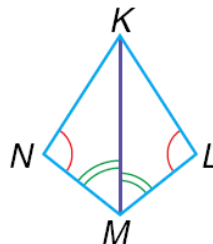
If two angles and the included side of one triangle are congruent to two angles and the included side of a second triangle, then the two triangles are congruent.

Angle-Angle-Side (AAS)

$\triangle NMK \cong \triangle ABC$



$\triangle NMK \cong \triangle LMK$



If two angles and a nonincluded side of one triangle are congruent to two angles and the nonincluded side of a second triangle, then the two triangles are congruent.

The Only Ways To Prove Triangles are Congruent: _____

1. In two triangles, $DF \cong UV$, $FE \cong VW$ and $m\angle F \cong m\angle V$. Write a congruence statement.

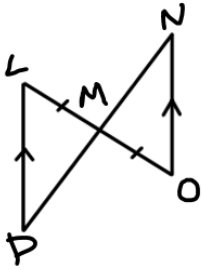
Δ _____ \cong Δ _____ by _____

2. If $\angle EDF \cong \angle LNP$, $DE \cong NL$ and $\angle E \cong \angle L$. Write the congruence statement. Δ _____ \cong Δ _____ by _____

Determine whether the triangles are congruent.

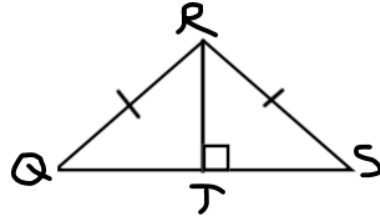
If they are, write a congruence statement explaining why they are congruent.

3.



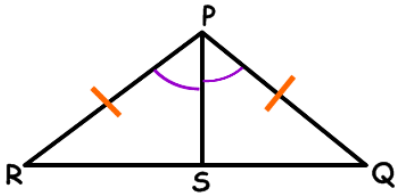
$\Delta PLM \cong \Delta$ _____ by _____

4.



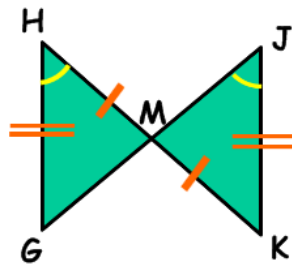
$\Delta QRT \cong \Delta$ _____ by _____

5.



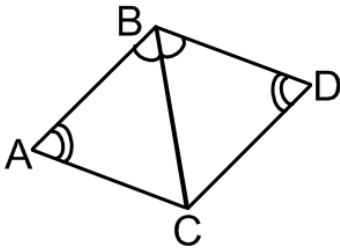
$\Delta SPR \cong \Delta$ _____ by _____

6.



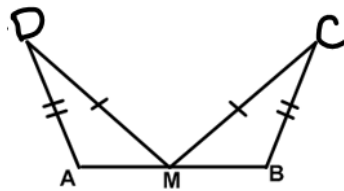
$\Delta MHG \cong \Delta$ _____ by _____

7.



$\Delta BDC \cong \Delta$ _____ by _____

8.



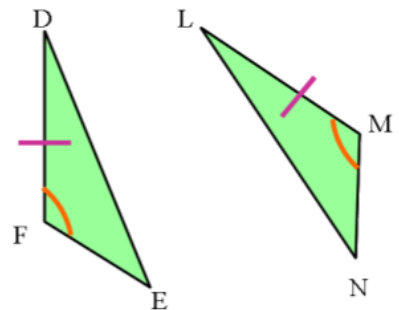
Given: M is the midpoint of \overline{AB} .

$\Delta MCB \cong \Delta$ _____ by _____

9. Use the two triangles on the right to answer the following questions:

A. What other pair of angles needs to be marked so that the two triangles are congruent by ASA? _____

B. What other pair of angles needs to be marked so that the two triangles are congruent by AAS? _____



1. Define congruent triangles: _____

Given that $\triangle PRT \cong \triangle XQJ$, complete questions 2 - 6.

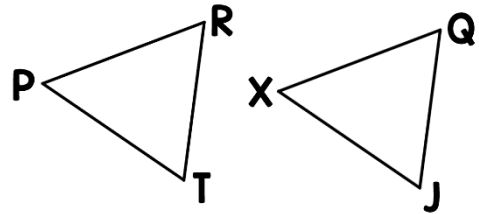
2. $\overline{RT} \cong$ _____

3. $\angle J \cong$ _____

4. $\triangle XJQ \cong$ _____

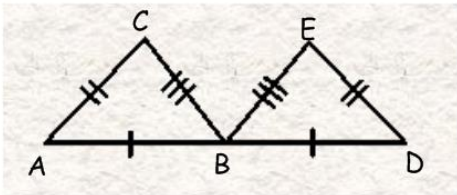
5. If $JQ = 24$, $QX = 18$, $JX = 30$, and $RT = 2y + 10$, then $y =$ _____

6. If $m\angle R = 57^\circ$, $m\angle P = 62^\circ$, then $m\angle X =$ _____ and $m\angle J =$ _____.



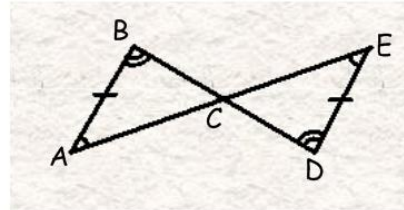
7. What are the five ways used to prove that two triangles are congruent?

8. Name the congruent triangles.



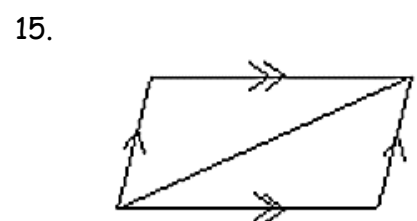
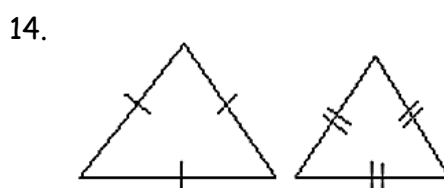
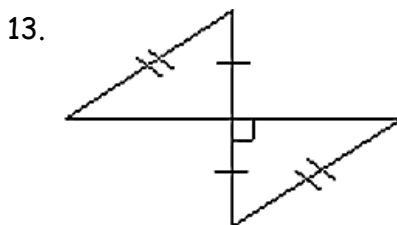
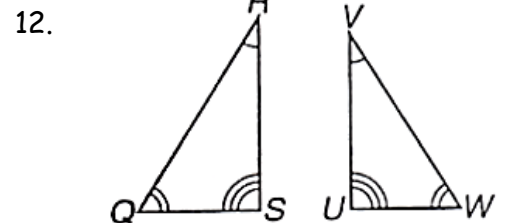
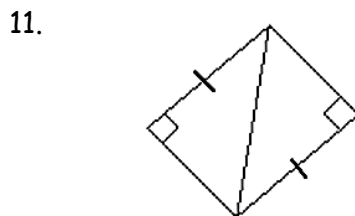
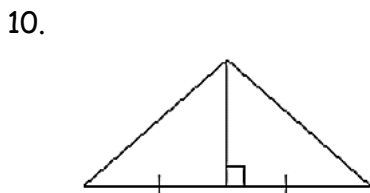
$\triangle ABC \cong$ _____ by _____

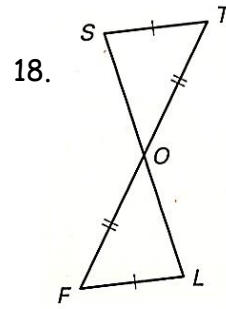
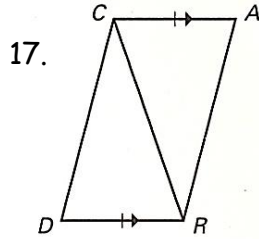
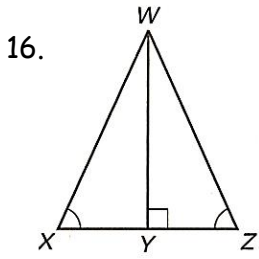
9. Name the congruent triangles.



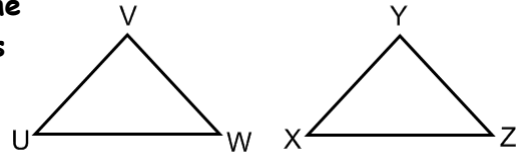
$\triangle ABC \cong$ _____ by _____

For questions 10 - 18, determine if the triangles are congruent. If they are congruent, then list the method used. If they are not congruent, write NC.





Use $\triangle UVW$ and $\triangle XYZ$ with the given information. List the missing corresponding parts needed to prove the triangles congruent by the given method.



19. $\overline{UV} \cong \overline{XY}$ and $\angle W \cong \angle Z$

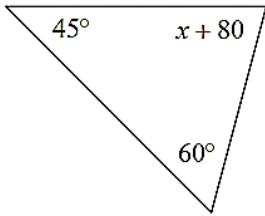
AAS _____

20. $\overline{UV} \cong \overline{XY}$ and $\angle V$ and $\angle Y$ are right angles

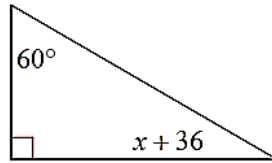
HL _____

Solve for the missing value.

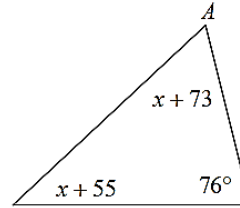
21. $x =$ _____



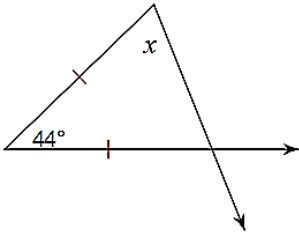
22. $x =$ _____



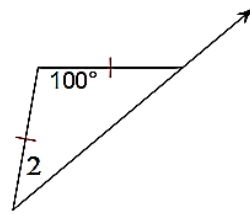
23. $x =$ _____ $m\angle A =$ _____



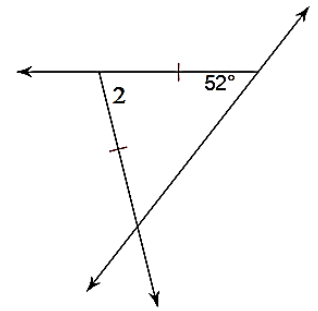
24. $x =$ _____



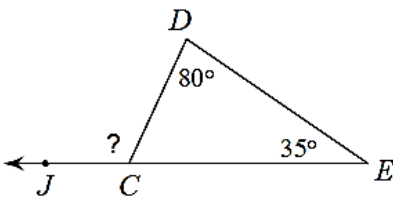
25. $x =$ _____ $m\angle 2 =$ _____
 $m\angle 2 = x + 49$



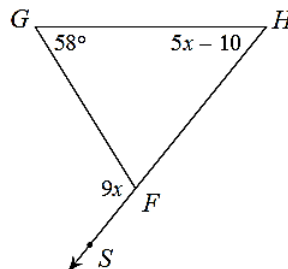
26. $x =$ _____ $m\angle 2 =$ _____
 $m\angle 2 = 5x + 16$



27. $? =$ _____



28. $x =$ _____
 $m\angle GHF =$ _____ $m\angle SFG =$ _____



29. $x =$ _____
 $m\angle VWU =$ _____ $m\angle WVU =$ _____

