Name: _____ Period: _____ Date: _____

Review: Classifying Triangles

Parts of a Triangle:

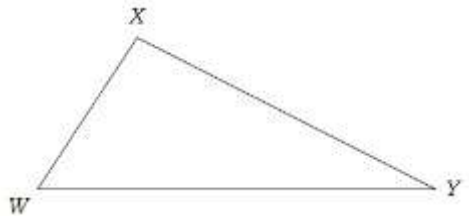
Triangle – a three-sided polygon

Name –

Sides –

Vertices –

Angles –



Classifying Triangles by Angles:

Acute Δ **Obtuse Δ** **Right Δ**

Equiangular Δ -

Classifying Triangles by Sides:

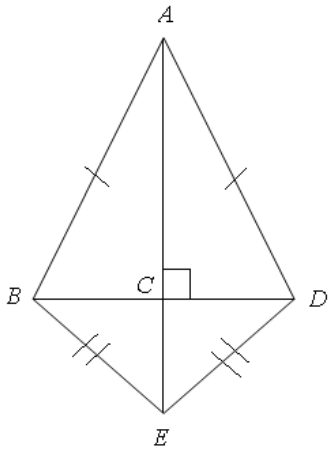
Scalene Δ **Isosceles Δ** **Equilateral Δ**

Name: _____ Period: _____ Date: _____

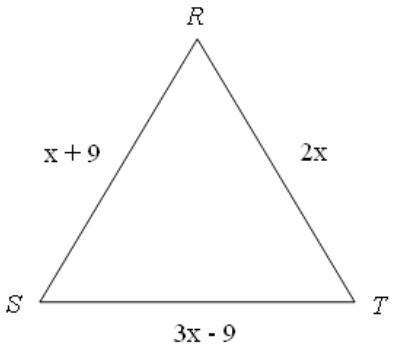
Example #1: Identify the indicated type of triangle in the figure.

a.) isosceles triangles

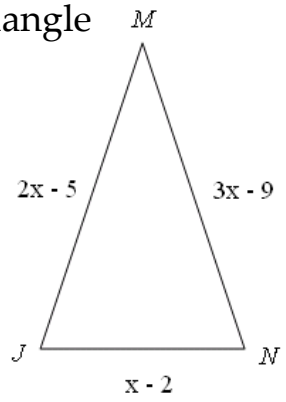
b.) scalene triangles



Example #2: Find x and the measure of each side of equilateral triangle RST.



Example #3: Find x, JM, MN, and JN if ΔJMN is an isosceles triangle with $\overline{JM} \cong \overline{MN}$.

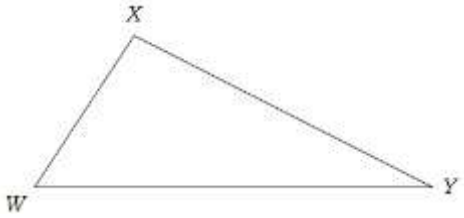


Name: _____ Period: _____ Date: _____

Review: Angles of Triangles

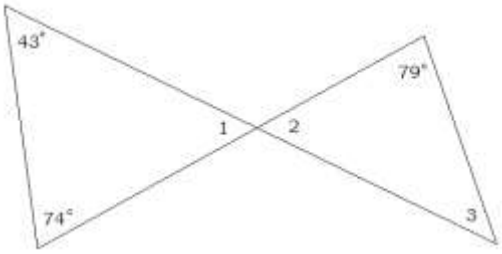
Angle Sum Theorem:

- The sum of the measures of the angles of a _____ is _____.

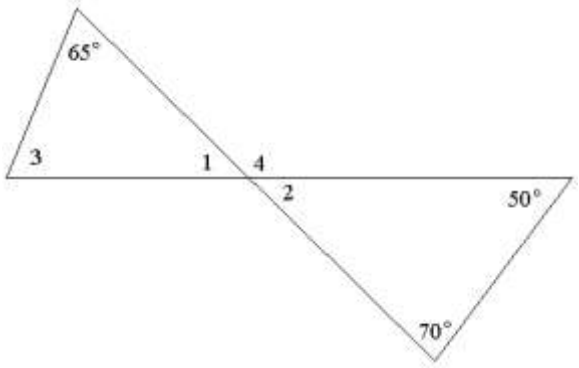


Example #1: Find the missing angle measures.

a.)

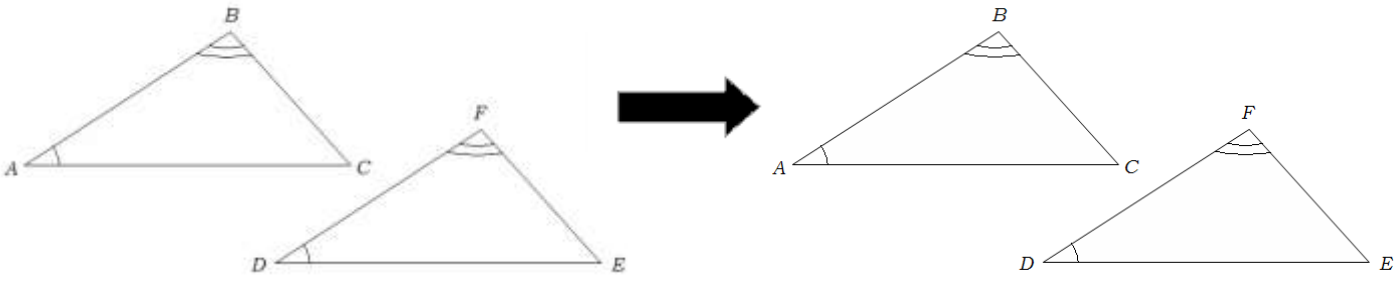


b.)



Third Angle Theorem:

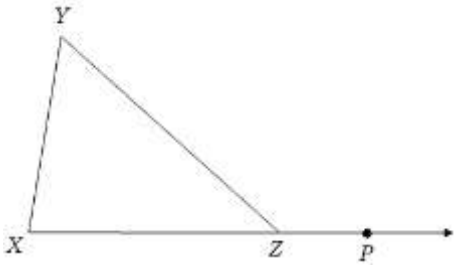
- If two angles of one triangle are _____ to two angles of a second triangle, then the third angles of the triangles are _____.



Name: _____ Period: _____ Date: _____

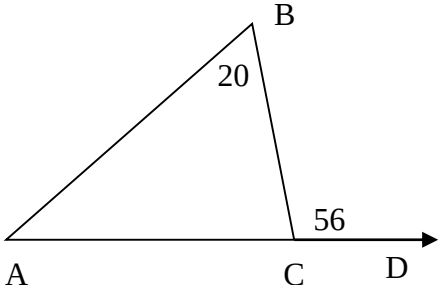
Exterior Angle Theorem:

- An **exterior angle** is formed by one side of a _____ and the extension of another _____.
- **Remote interior angles** are the angles of a triangle that are not _____ to a given _____ angle.
- The measure of an exterior angle of a triangle is _____ to the sum of the measures of the two _____ interior angles.



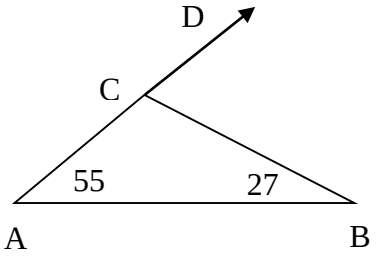
Example #2: Find the measure of each of the following angles.

a.)



$m\angle A =$

b.)



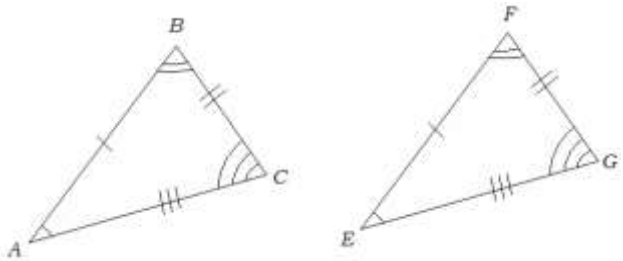
$m\angle DCB =$

Name: _____ Period: _____ Date: _____

Review: Congruent Triangles

Congruent Triangles: triangles that are the same _____ and _____

- Each triangle has three _____ and three _____.
- If all _____ of the corresponding parts of two triangles are _____, then the triangles are _____.



Congruent Triangles:

Corresponding Congruent Angles:

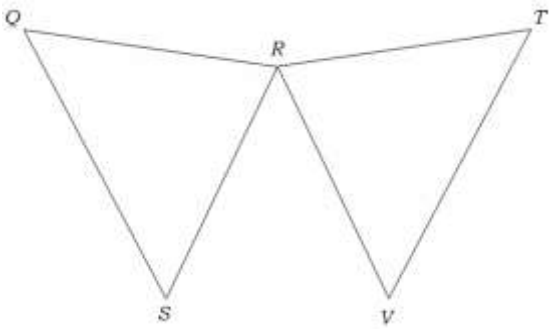
Corresponding Congruent Sides:

Definition of Congruent Triangles (CPCTC):

- Two triangles are congruent if and only if their corresponding parts are _____.
- ***CPCTC –*** Corresponding parts of congruent triangles are congruent

Name: _____ Period: _____ Date: _____

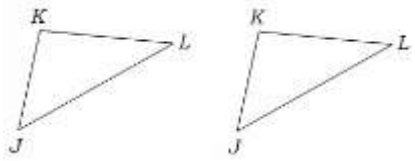
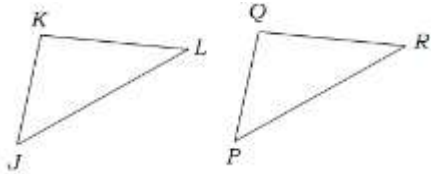
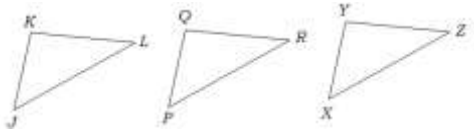
Example #1: In the following figure, $QR = 12$, $RS = 23$, $QS = 24$, $RT = 12$, $TV = 24$, and $RV = 23$.



Name the corresponding congruent angles and sides.

Name the congruent triangles.

<u>Properties of Triangle Congruence</u>:

<u>Reflexive</u>	***<u>Symmetric</u>***	***<u>Transitive</u>***
		

Example #2: If $\Delta WXZ \cong \Delta STJ$, name the congruent angles and congruent sides.

Angles –

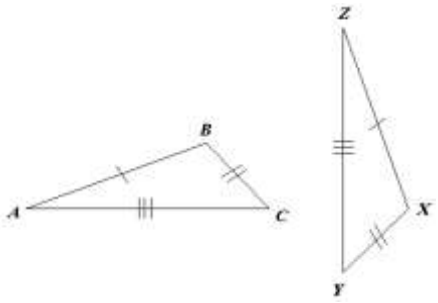
Sides –

Name: _____ Period: _____ Date: _____

Review: Proving Congruence – SSS, SAS

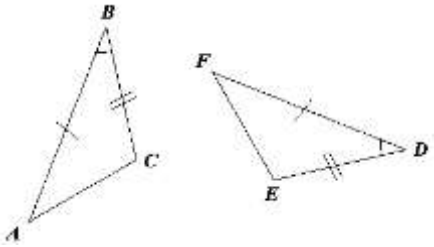
Side–Side–Side Congruence: If the _____ of one triangle are congruent to the sides of a second triangle, then the triangles are _____.

Abbreviation:



Side–Angle–Side Congruence: If two sides and the included _____ of one triangle are congruent to two _____ and the included angle of another triangle, then the triangles are _____.

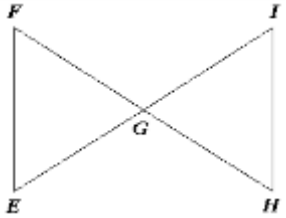
Abbreviation:



Example #1: Write a proof.

Given: $\overline{EI} \cong \overline{FH}$, $\overline{FE} \cong \overline{HI}$, and G is the midpoint of both $\overline{EI}$ and $\overline{FH}$.

Prove: $\Delta FEG \cong \Delta HIG$

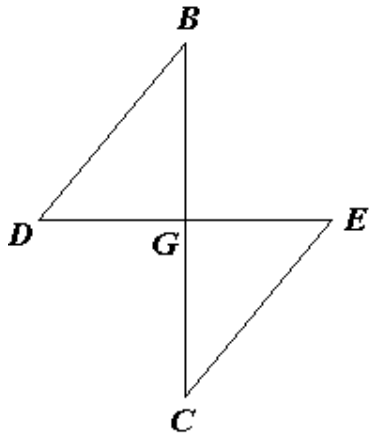


Name: _____ Period: _____ Date: _____

Example #2: Write a proof.

Given: $\overline{DE}$ and $\overline{BC}$ bisect each other.

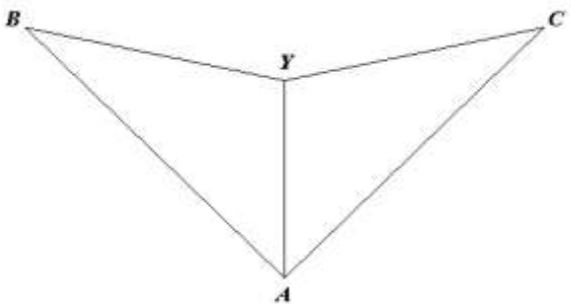
Prove: $\Delta DGB \cong \Delta EGC$



Example #3: Write a proof.

Given: $\overline{AB} \cong \overline{AC}$ and $\overline{BY} \cong \overline{CY}$

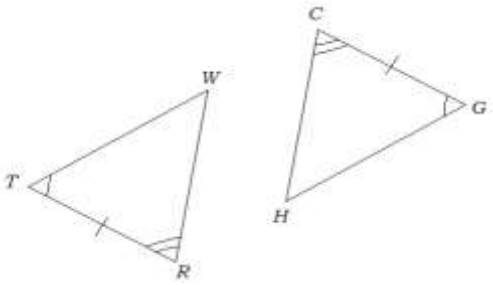
Prove: $\Delta BYA \cong \Delta CYA$



Name: _____ Period: _____ Date: _____

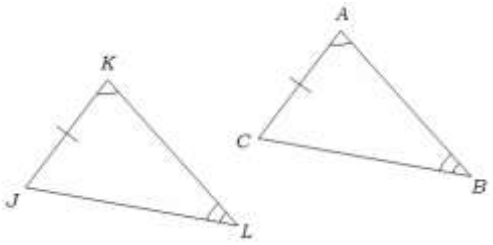
Review: Proving Congruence – ASA, AAS

Angle–Side–Angle Congruence: If two _____ and the included _____ of one triangle are congruent to two angles and the included side of another triangle, then the triangles are _____.



Abbreviation:

Angle–Angle–Side Congruence: If two angles and a non-included side of one triangle are congruent to the corresponding two _____ and a side of a second triangle, then the two triangles are _____.



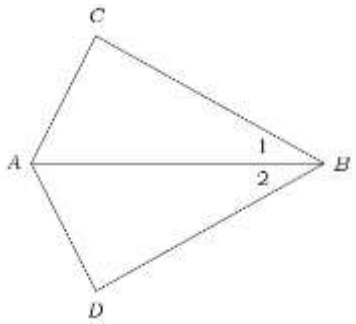
Abbreviation:

Example #1: Write a two-column proof.

Given: $\overline{AB}$ bisects $\angle CAD$

$\angle 1 \cong \angle 2$

Prove: $\Delta CAB \cong \Delta DAB$

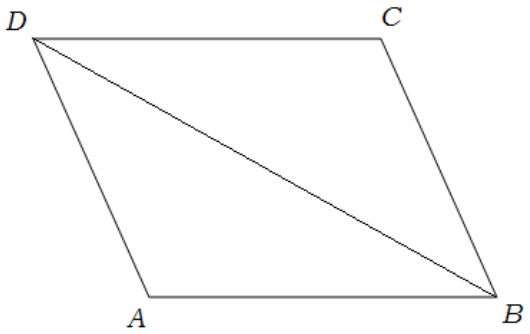


Name: _____ Period: _____ Date: _____

#2: Write a two-column proof.

Given: $\overline{AD} \parallel \overline{CB}$
$\angle A \cong \angle C$

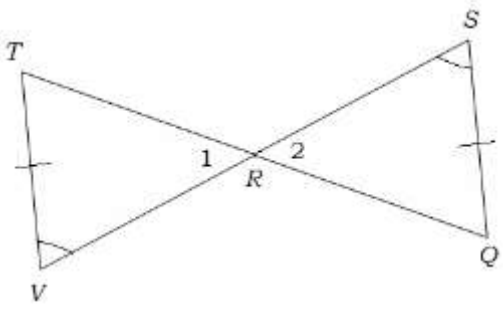
Prove: $\Delta DGB \cong \Delta EGC$



Example #3: Write a two-column proof.

Given: $\angle V \cong \angle S$
$\overline{TV} \cong \overline{QS}$

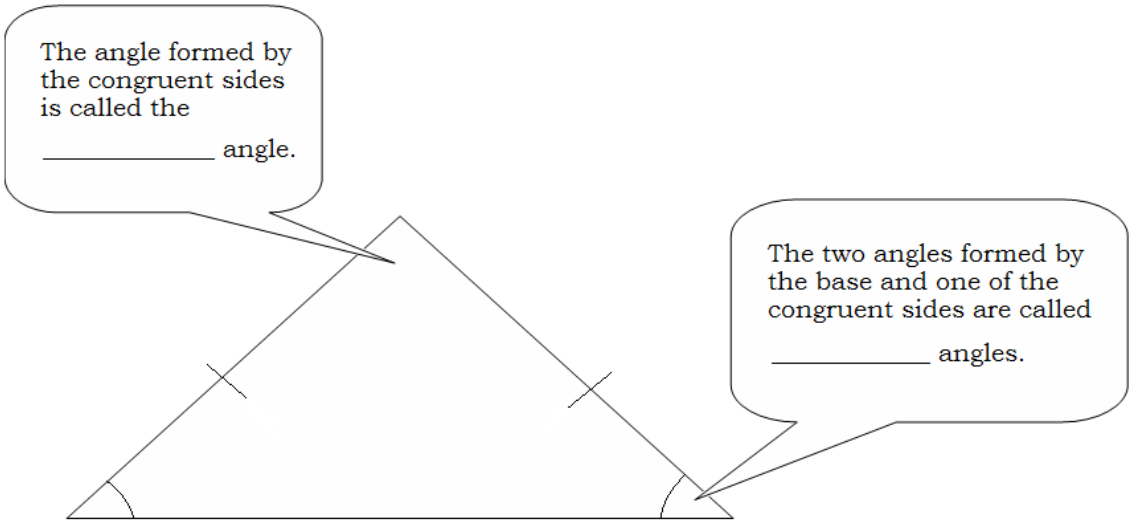
Prove: $\overline{VR} \cong \overline{SR}$



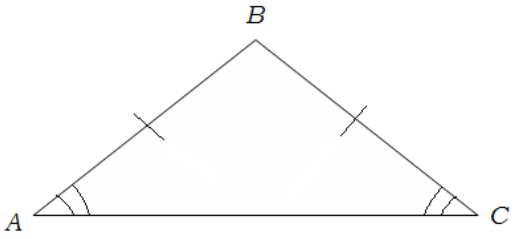
Name: _____ Period: _____ Date: _____

Isosceles Triangles

Isosceles Triangle: A triangle with at least _____ sides congruent.

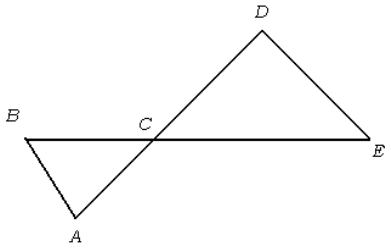


Isosceles Triangle Theorem: If two sides of a triangle are _____, then the angles opposite those sides are _____.



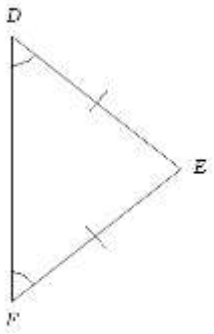
Ex:

Example #1: If $\overline{DE} \cong \overline{CD}$, $\overline{BC} \cong \overline{AC}$, and $m\angle CDE = 120$, what is the measure of $\angle BAC$?



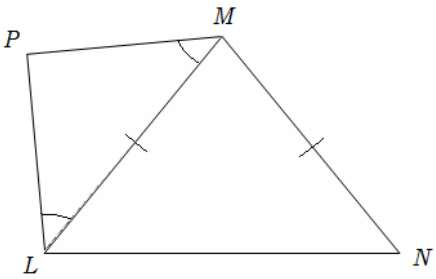
Name: _____ Period: _____ Date: _____

Theorem: If two angles of a _____ are congruent, then the sides opposite those angles are _____.



Ex:

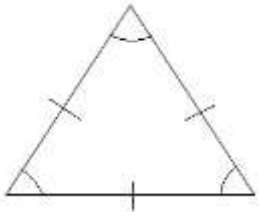
Example #2:



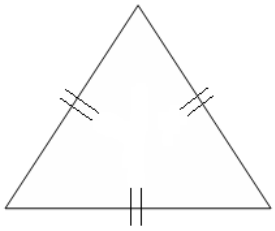
a.) Name all of the congruent angles.

b.) Name all of the congruent segments.

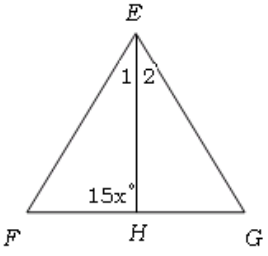
Corollary: A triangle is _____ if and only if it is _____.



Corollary: Each angle of an equilateral triangle measures _____.



Example #3: ΔEFG is equilateral, and $\overline{EH}$ bisects $\angle E$.



a.) Find $m\angle 1$ and $m\angle 2$.

b.) Find x.