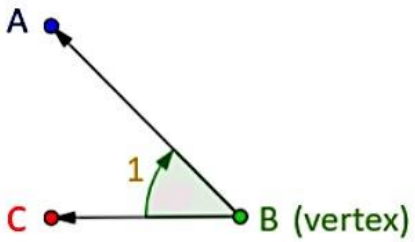
Line Vocabulary

Vocabulary:	Picture:	Notation:
Point- an exact position or location in a given plane		
Line- a set of two points in a plane and the infinite number of points that continue beyond the points.		
Line segment- a line with two end points.		
Ray- is defined by two points, one is an endpoint.		
Parallel lines- two lines that will never intersect.		
Perpendicular lines- two lines that meet at a right angle.		
Angle- is formed where two line segments or rays share an end point.		

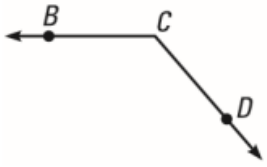
Naming Angles



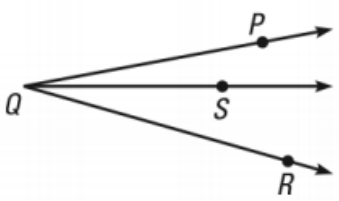
The vertex is the point where two rays meet to from an angle.

Angles can be named in the following ways:
- By three capital letters, with the vertex letter in the middle.
- By one capital letter, this can only be used if it is the only angle it could be.
- By the lower case letter or number written in the middle of the angle.

Ex. 1 Name the angle in the figure.



Ex.2 Name the angles in the figure.



Types of Angles

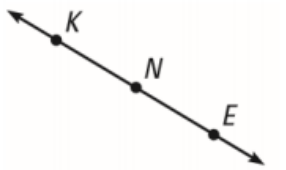
Acute angle - measures less than 90 degrees but greater than zero degrees.

Obtuse angle - measures greater than 90 degrees but less than 180 degrees.

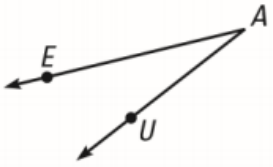
Right angle - measure exactly 90 degrees.

Straight - an angle that measure 180 degrees

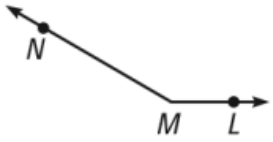
Ex.3 Classify the angles.



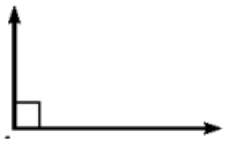
Ex.4



Ex.5



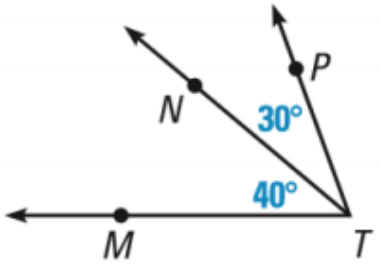
Ex.6



Angle Addition Postulate If you two angles are side by side, then the measure of the resulting angle will be equal to the sum of the two original angle measures.

$$m\angle RSP + m\angle PST = m\angle RST$$

Ex.7 Find the measure of $\angle PTM$.



Ex.8 Determine the following and use correct notation.

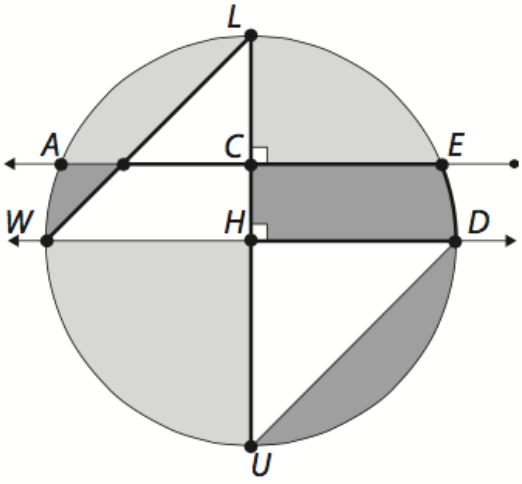
a. Identify a line in the submitted logo.

b. Identify a ray in the submitted logo.

c. Identify a line segment in the submitted logo.

d. Identify two pairs of parallel line segments in the submitted logo.

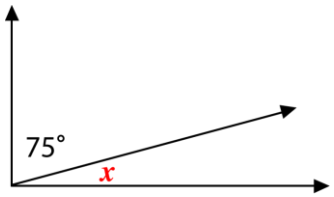
e. Identify one pair of perpendicular lines in the submitted logo



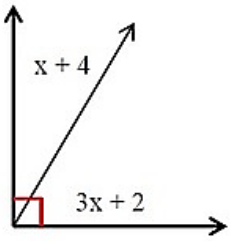
Angles Vocabulary

Congruent angles – two or more angles with the same measure.
Complementary Angles- two angles whose sum is 90^o.

Ex.1

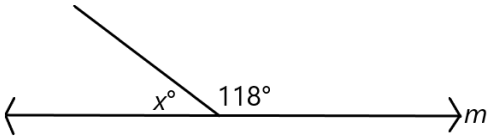


Ex.2

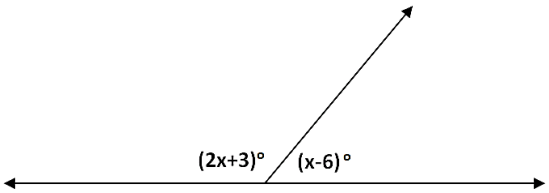


Supplementary Angles – two angles whose sum is 180^o.

Ex.3

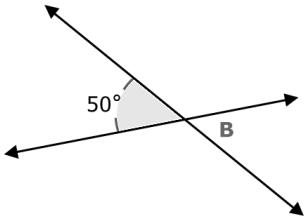


Ex.4

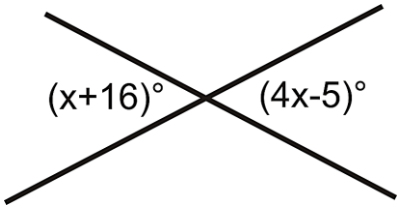


Vertical angle – *Two angles that share a common vertex and their sides form two pairs of opposite rays.* Vertical angles are **congruent**.

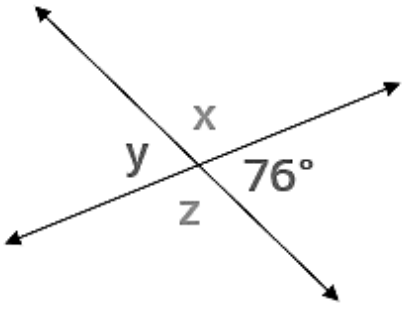
Ex.5



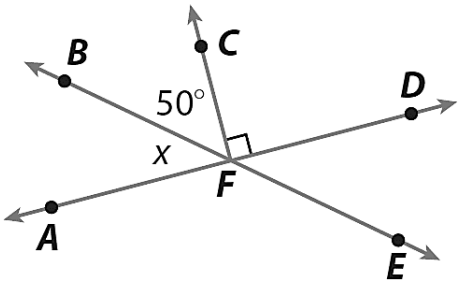
Ex.6



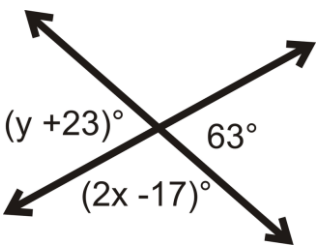
Ex.7



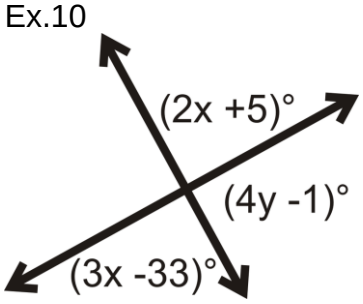
Ex.8



Ex.9



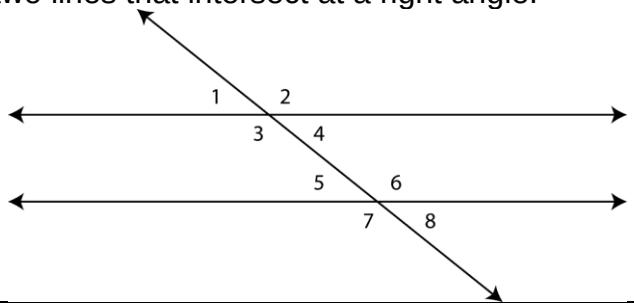
Ex.10



Geometry Notes Name: _____ Block: __

Transversal Notes

- A transversal is a line that intersects a system of two or more lines at different points.
- Two lines are parallel if they do not intersect.
- Perpendicular lines are two lines that intersect at a right angle.



Corresponding Angles Postulate:
If two parallel lines are cut by a transversal, then the pairs of corresponding angles are congruent.

$\angle\_\_\_ = \angle\_\_\_$ $\angle\_\_\_ = \angle\_\_\_$
$\angle\_\_\_ = \angle\_\_\_$ $\angle\_\_\_ = \angle\_\_\_$

Alternate Exterior Angles Theorem:
If two parallel lines are cut by a transversal, then the pairs of alternate exterior angles are congruent.

$\angle\_\_\_ = \angle\_\_\_$
$\angle\_\_\_ = \angle\_\_\_$

Alternate Interior Angles Theorem:
If two parallel lines are cut by a transversal, then the pairs of alternate interior angles are congruent.

$\angle\_\_\_ = \angle\_\_\_$
$\angle\_\_\_ = \angle\_\_\_$

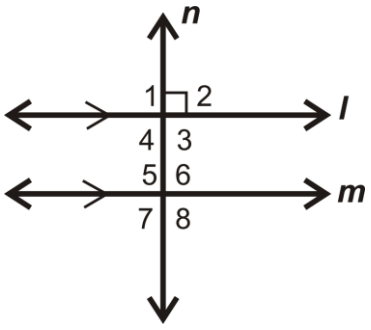
Consecutive Exterior Angles Theorem: (Same Side Exterior Angles)
If two parallel lines are cut by a transversal, then the pairs of consecutive exterior angles are supplementary.

$\angle\_\_\_ + \angle\_\_\_ = \_\_\_$
$\angle\_\_\_ + \angle\_\_\_ = \_\_\_$

Consecutive Interior Angles Theorem: (Same Side Interior Angles)
If two parallel lines are cut by a transversal, then the pairs of consecutive interior angles are supplementary.

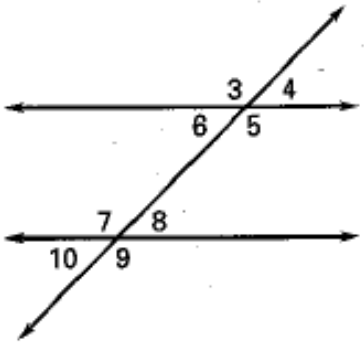
$\angle\_\_\_ + \angle\_\_\_ = \_\_\_$
$\angle\_\_\_ + \angle\_\_\_ = \_\_\_$

Perpendicular Transversal Theorem:
If a transversal is perpendicular to one of the two parallel lines, then it is perpendicular to the other.

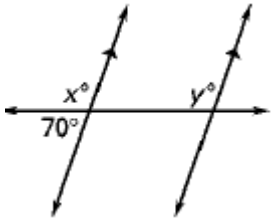


Ex.1 Identify the angles as corresponding, alternate interior, alternate exterior, consecutive interior, or consecutive exterior.

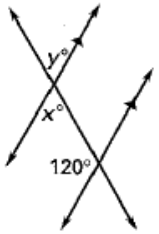
1. ∠3 and ∠7 _____
2. ∠4 and ∠10 _____
3. ∠5 and ∠8 _____
4. ∠8 and ∠6 _____
5. ∠9 and ∠5 _____
6. ∠5 and ∠7 _____



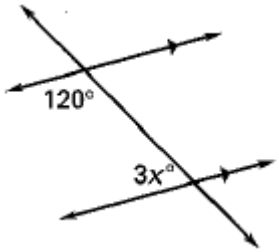
Ex.2



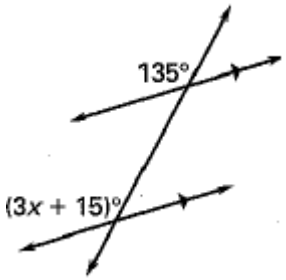
Ex.3



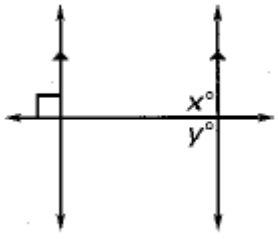
Ex.4



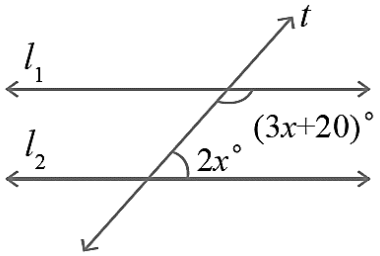
Ex.5



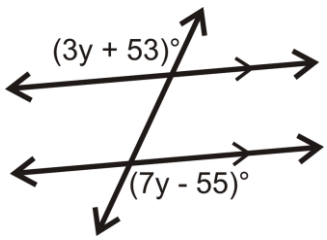
Ex.6



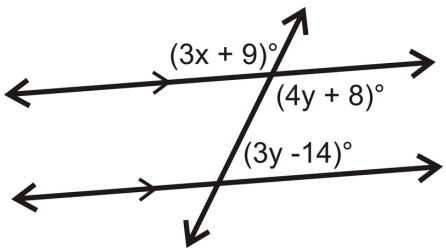
Ex.7



Ex.8



Ex.9

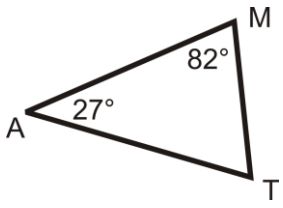


Name: _____ Block: __

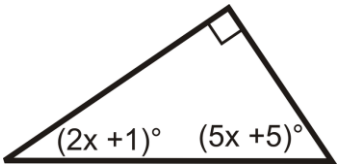
Triangle Notes

- **Triangle Sum Theorem**- the sum of the angle measures of a triangle is 180 degrees.
- A scalene triangle has no congruent sides.

Ex.1

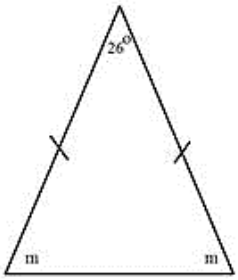


Ex.2

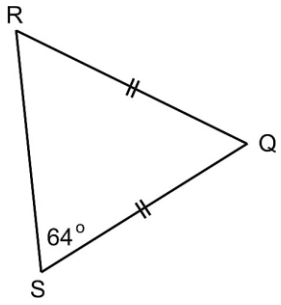


- An isosceles triangle has two congruent angles and two congruent sides.

Ex.3

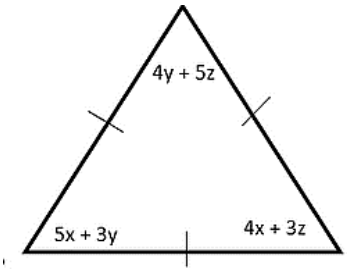


Ex.4

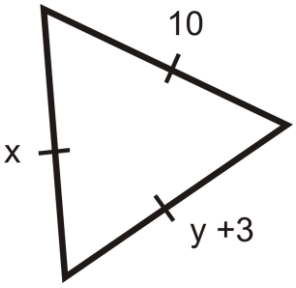


- An equilateral triangle has three congruent sides.
- An equiangular triangle has three congruent angles.
- If a triangle is equilateral then it is also equiangular and vice versa.

Ex.5

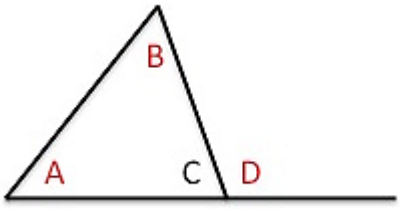


Ex.6

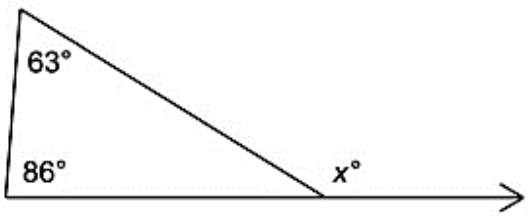


- **Exterior Angle Theorem** - the measure of an exterior angle of a triangle is equal to the sum of the measures of its remote interior angles.

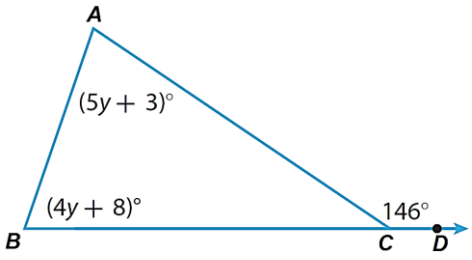
$$\angle A + \angle B = \angle D$$



Ex.7



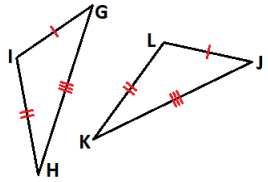
Ex.8



Criteria for Congruent Triangle

Side-Side-Side

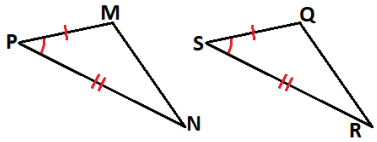
If three corresponding sides are congruent in two triangles, then the triangles are congruent.



ΔGIH ≅ Δ_____ by _____

Side-Angle-Side

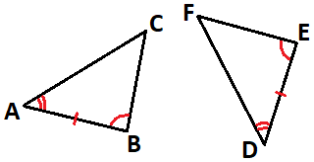
If two corresponding sides and their included angle are congruent in two triangles, then the triangles are congruent.



ΔMPN ≅ Δ_____ by _____

Angle-Side-Angle

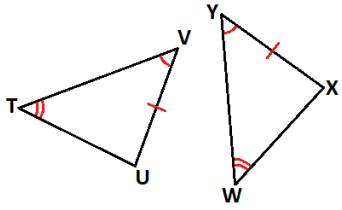
If two corresponding angles and their included side are congruent in two different triangles, then the triangles are congruent.



ΔABC ≅ Δ_____ by _____.

Angle-Angle-Side

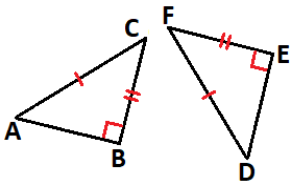
If two corresponding angles and their non-included side are congruent in two different triangles, then the triangles are congruent.



ΔTUV ≅ Δ_____ by _____.

Hypotenuse-Leg

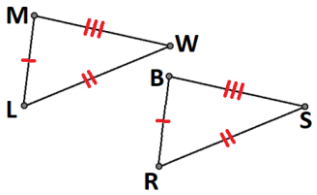
If two corresponding hypotenuses and legs are congruent in two right triangles, then the right triangles are congruent.



ΔABC ≅ Δ_____ by _____.

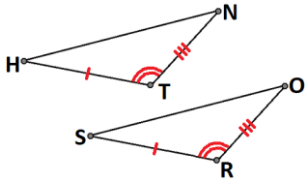
Complete the congruence statement and write the criteria (SSS, SAS, ASA, AAS, HL) for the congruent triangles.

1.



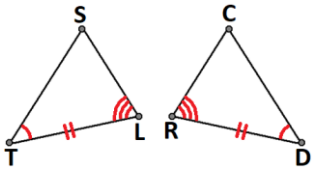
ΔMLW ≅ Δ_____ by _____

2.



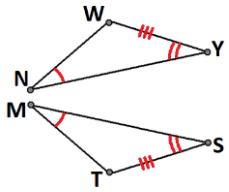
ΔHTN ≅ Δ_____ by _____

3.



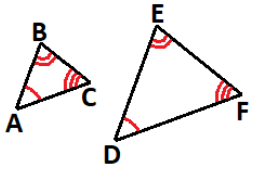
ΔSTL ≅ Δ_____ by _____

4.



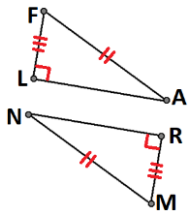
ΔNWY ≅ Δ_____ by _____

5.



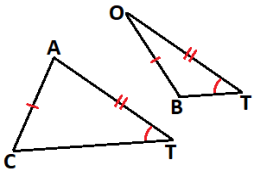
ΔABC is not congruent to Δ_____

6.



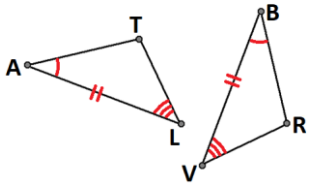
ΔFLA ≅ Δ_____ by _____

7.



ΔACT is not congruent to Δ_____

8.

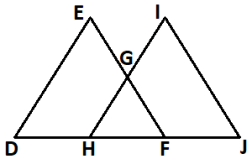


ΔATL ≅ Δ_____ by _____

Name the additional information that is sufficient to prove that the triangles are congruent by the given criteria.

9. ΔDEF ≅ ΔJIH by SSS

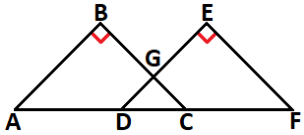
DE ≅ JI, EF ≅ IH, ?



Additional information: _____ ≅ _____

10. ΔABC ≅ ΔFED by SAS

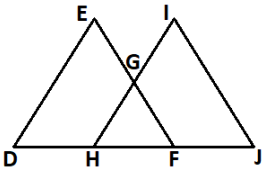
BC ≅ ED, ∠B ≅ ∠E, ?



Additional information: _____ ≅ _____

11. ΔDEF ≅ ΔJIH by ASA

∠D ≅ ∠J, DE ≅ JI, ?



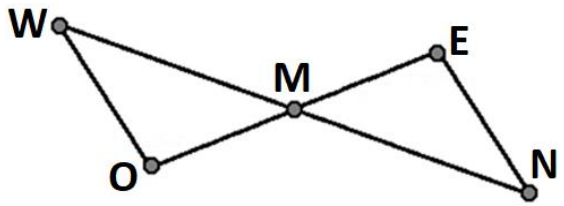
Additional information: _____ ≅ _____

Two Column Proofs

- Reflexive property: any quantity is equal to itself.
- Midpoint: a point that divides a segment into two congruent segments.
- Bisect: divide into two equal parts
- If two or more triangles are proven congruent, then all of their corresponding parts are congruent.
- **CPCTC**: corresponding parts of corresponding triangles are congruent

Ex.1 Prove: ΔWMO and ΔNME congruent

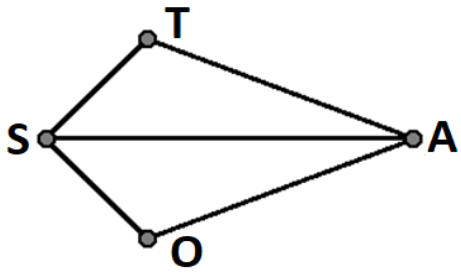
Given: M is the midpoint of $\overline{WN}$, M is the midpoint of $\overline{OE}$, ∠W ≅ ∠N



Statement	Reason
ΔWMO ≅ Δ_____	

Ex.2 Prove: ΔTSA and ΔOSA congruent

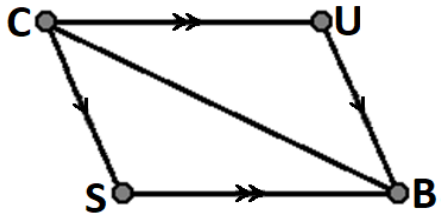
Given: $\overline{SA}$ is the angle bisector of ∠TSO, $\overline{AS}$ is the angle bisector of ∠TAO



Statement	Reason
ΔTSA ≅ Δ_____	

Ex.3 Prove $\overline{CS} \cong \overline{BU}$

Given: $\overline{CU}$ is parallel to $\overline{SB}$, $\overline{CS}$ is parallel to $\overline{UB}$



Statement	Reason
ΔCUB ≅ Δ_____	
CS ≅ BU	