

**GEOMETRY
HONORS
CLASS NOTES**

Name: _____

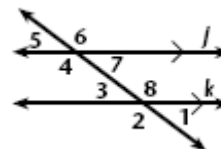
Section: 3.3 Period: _____ Date: _____

Key Question: _____

Questions/ Main Ideas:

Warm-up: Refer to the diagram at right.

a. Is $\angle 1$ congruent to $\angle 3$? If so, by which postulate or theorem?



b. What is the relationship between $\angle 4$ and $\angle 7$?

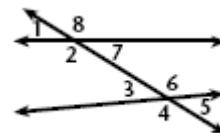
Notes:

• A _____ of two lines is a line that intersects the given lines in two different points. When a transversal t intersects two lines m and n , the pairs of angles formed have special names.



- _____ **angles:** a pair of angles outside m and n on opposite sides of t .
- _____ **angles:** a pair of angles in corresponding positions relative to m and n .
- _____ **angles:** a pair of angles between m and n on opposite sides of t .
- _____ **angles:** a pair of consecutive angles between m and n on the same side of t .

Example 1 - Indicate whether the pairs of angles are corresponding angles, alternate interior angles, alternate exterior angles, or same-side interior angles.



a. $\angle 3$ and $\angle 7$

b. $\angle 8$ and $\angle 6$

c. $\angle 4$ and $\angle 8$

d. $\angle 2$ and $\angle 3$

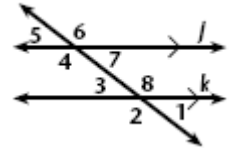
When two parallel lines are intersected by a transversal:

- Corresponding angles are _____.
- Alternate interior angles are _____.
- Alternate exterior angles are _____.
- Same-side interior angles are _____.

These statements can all be proven and are usable theorems.

Example 2

Lines j and k are parallel. Name all the angles that are congruent to $\angle 1$. Justify your answer.



Example 3

Refer to the figure in Example 2 above. If $m\angle 4 = 142^\circ$ find $m\angle 3$.

Example 4

Refer to the figure in Example 2 above. If $m\angle 2 = x^\circ$ and $m\angle 4 = (3x - 60)^\circ$, find $m\angle 1$.

Summary: _____
