

Independent Practice

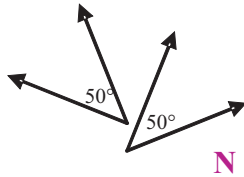
8.3

NAME _____

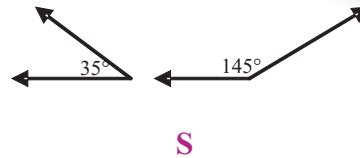
Module 8 Points, Lines, Angles, and Triangles
Lesson 3 Angle Relationships and Parallel Lines

Write C if the angles are complementary, S if they are supplementary, or N if they are neither.

1.



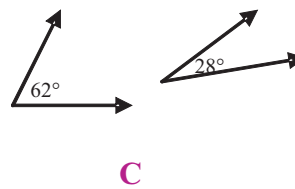
2.



3.



4.



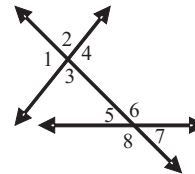
Identify the special angle pair name for each pair below.
Write *none* if the pair has no special name.

5. $\angle 4$ and $\angle 7$ **Corresponding**

6. $\angle 4$ and $\angle 5$ **Alternate interior**

7. $\angle 6$ and $\angle 1$ **None**

8. $\angle 8$ and $\angle 2$ **Alternate exterior**



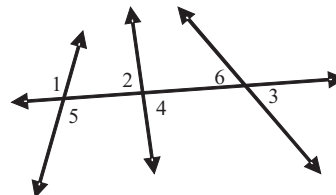
Identify the special angle pair name for each pair below.
Write *none* if the pair has no special name.

9. $\angle 1$ and $\angle 3$ **Alternate exterior**

10. $\angle 2$ and $\angle 4$ **Vertical**

11. $\angle 5$ and $\angle 6$ **Alternate interior**

12. $\angle 3$ and $\angle 4$ **Corresponding**



$$m \parallel n$$

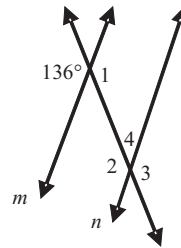
Find the following:

13. $m\angle 1$ 136°

14. $m\angle 2$ 136°

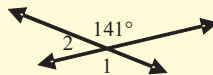
15. $m\angle 3$ 136°

16. $m\angle 4$ 44°



Journal

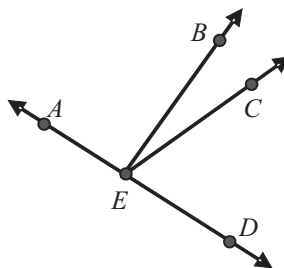
- How are complementary and supplementary angles the same? How are they different?
- What must be true if all eight angles formed by two lines and a transversal are congruent? Explain why.
- Describe two strategies for finding $m\angle 1$ and $m\angle 2$.



- To alternate* can mean *to take turns*. How can you use this definition to identify alternate interior and alternate exterior angles?

Cumulative Review

Use the diagram below to answer the following:



- Name two angles which appear to be right angles.

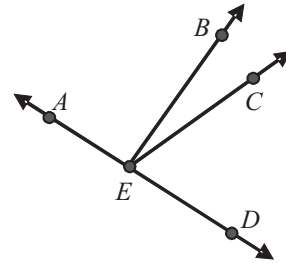
$\angle AEB$ and $\angle DEB$

NAME _____

Module 8 **Points, Lines, Angles, and Triangles**
Lesson 3 **Angle Relationships and Parallel Lines**

2. Name two angles that appear to be acute angles.

$\angle BEC$ and $\angle CED$



3. Name the obtuse angle. Estimate its measure.

$\angle AEC$; about 110°

4. Estimate $m\angle BEC$.

About 20°

5. Name all the rays with point E as its endpoint.

\vec{EA} , \vec{EB} , \vec{EC} , \vec{ED}

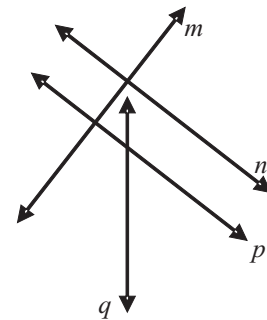
6. What is another way to name \vec{DA} ?

\vec{DE}

Use the diagram at right to answer the following:

7. Name two lines which appear to be parallel.

Line n and line p



8. Name two pairs of lines which appear to be perpendicular.

Line m and line n
Line m and line p

9. Name three pairs of lines which are intersecting but not perpendicular.

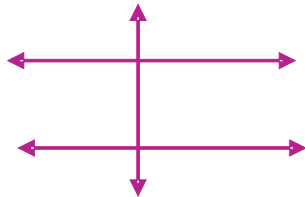
Line q and line p

Line q and line n

Line q and line m

Possible Journal Answers

1. Complementary and supplementary angles are the same in that they both come in pairs. They are also the same in that their sum must be a certain number of degrees. They are different because the sum of their measures must be a different number of degrees. Complementary angles have a sum of 90° , and supplementary angles have a sum of 180° .
2. If all eight angles formed by two lines and a transversal are congruent, then the two lines are parallel and the transversal is perpendicular to the parallel lines, as in the diagram below.



The two lines have to be parallel for the corresponding, alternate interior, and alternate exterior angles to be congruent. The transversal has to be perpendicular to those lines to make the supplementary angles congruent (both 90°).

3. One strategy is to first use the fact that vertical angles are congruent. Therefore, $m\angle 1 = 141^\circ$. Then, $m\angle 2$ is 39° because $\angle 1$ and $\angle 2$ are supplementary. Another strategy is to first find $m\angle 2$ by subtracting 141° from 180° because $\angle 2$ is supplementary to the angle labeled 141° . This makes $m\angle 2 = 39^\circ$. Then, subtract 39° from 180° because $\angle 1$ is supplementary to $\angle 2$. This makes $m\angle 1 = 141^\circ$.
4. Think of the angles as taking turns on what side of the transversal they are on. If one angle is on the left of the transversal, the next is on the right side of the transversal. Because interior means inside, alternate interior angles are inside or in between the two lines but on different sides of the transversal. Exterior means outside, so alternate exterior angles are outside of the two lines but on different sides of the transversal.