

Challenge Problems

8.3

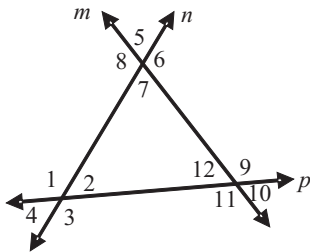
NAME _____

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

Set 1

1 Two angles are complementary and congruent. Find the measures of the angles.

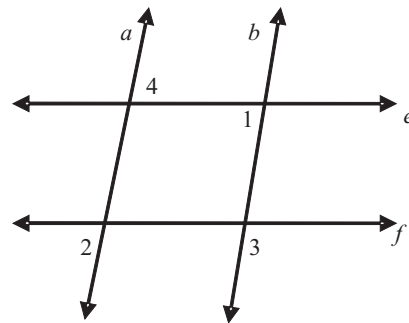
2 Identify the transversal that forms each pair of angles. Then, give the special angle pair name for that pair.



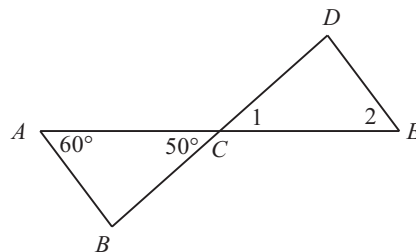
$\angle 2$ and $\angle 8$
 $\angle 5$ and $\angle 11$
 $\angle 2$ and $\angle 9$

Set 2

1 $a \parallel b$ and $e \parallel f$
If $m\angle 4 = 75^\circ$, find $m\angle 1$, $m\angle 2$, and $m\angle 3$.



2 $\overline{AB} \parallel \overline{DE}$
Explain how to find $m\angle 1$ and $m\angle 2$.



Possible Answers

Set 1

1. Complementary angles add up to 90° . If they are congruent, they have the same measure. Divide 90° by two. Each angle measures 45° .
2. $\angle 2$ and $\angle 8$: Line n , alternate interior
 $\angle 5$ and $\angle 11$: Line m , alternate exterior
 $\angle 2$ and $\angle 9$: Line p , corresponding

Set 2

1. $m\angle 1 = 75^\circ$
 $m\angle 2 = 75^\circ$
 $m\angle 3 = 105^\circ$
2. $m\angle 1 = 50^\circ$ because vertical angles are congruent.
 $m\angle 2 = 60^\circ$ because $\angle A$ and $\angle E$ are alternate interior angles.