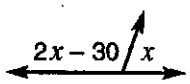
Name _____

Algebra Angle Measures

Example

The supplement of an angle is 30° less than twice the measure of the angle itself. Find the angle.

1. Make a sketch, using x to represent the angle. (Complementary angles add up to 90°; supplementary angles add up to 180°.)



2. Write an equation. $x + 2x - 30 = 180$

3. Solve for x.

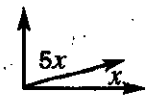
$x + 2x - 30 = 180$
$3x - 30 = 180$
$3x = 210$
$x = 70°$

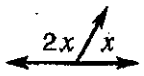
4. Check your answer.

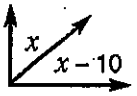
The measure of the angle is 70°.
The supplement is (2 x 70) − 30 = 110°.
70° + 110° = 180°

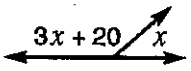
Read each problem and draw a line to its matching sketch. Write an equation for the problem, using x for the angle. Solve for x. When you finish, find and circle your answer in the box below.

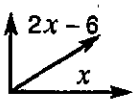
1. The supplement of an angle is twice the measure of the angle itself. Find the angle.
2. The complement of an angle is five times the measure of the angle itself. Find the angle.
3. The complement of an angle is 10° less than the measure of the angle itself. Find the angle.
4. The supplement of an angle is 20° more than the measure of the angle itself. Find the angle.
5. Two angles are congruent and complementary. Find their measures.
6. Two angles are congruent and supplementary. Find their measures.
7. The supplement of an angle is 20° more than three times the measure of the angle itself. Find the angle.
8. The complement of an angle is 6° less than twice the measure of the angle itself. Find the angle.

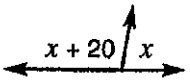












15°	32°	40°	45°	50°	60°	(70°)	80°	90°

Name _____

Angles Formed by Parallel, Perpendicular, and Intersecting Lines

Remember

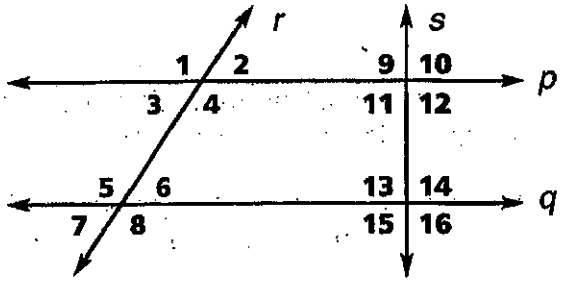
1. If two parallel lines are cut by a transversal, the resulting angles are either congruent or supplementary.

Congruent angles:	**Supplementary angles:**
Vertical angles ($\angle 2 \cong \angle 3$)	**Adjacent angles** ($m\angle 1 + m\angle 3 = 180°$)
Corresponding angles ($\angle 1 \cong \angle 5$)	**Same side interior angles** ($m\angle 3 + m\angle 5 = 180°$)
Alternate interior angles ($\angle 4 \cong \angle 5$)	**Same side exterior angles** ($m\angle 2 + m\angle 8 = 180°$)
Alternate exterior angles ($\angle 1 \cong \angle 8$)	

2. If the transversal is perpendicular, the angles formed are right angles. ($m\angle 9 = 90°$)

Refer to the diagram to complete each sentence. Fill in the missing angle measure and type of angle. When you finish, circle each answer in the box below.

Given: $p \parallel q$ $s \perp p$ $s \perp q$



1. If $m\angle 1 = 120°$, $m\angle 2 =$ _____ because they are _____ angles.
2. If $m\angle 5 = 130°$, $m\angle 8 =$ _____ because they are _____ angles.
3. If $m\angle 4 = 125°$, $m\angle 6 =$ _____ because they are same side _____ angles.
4. If $m\angle 4 = 125°$, $m\angle 8 =$ _____ because they are _____ angles.
5. If $m\angle 2 = 45°$, $m\angle 7 =$ _____ because they are alternate _____ angles.
6. If $m\angle 3 = 50°$, $m\angle 6 =$ _____ because they are _____ interior angles.
7. If $m\angle 7 = 42°$, $m\angle 1 =$ _____ because they are _____ exterior angles.
8. The measures of $\angle 9$ through $\angle 16 =$ _____ because they are all _____ angles.

45°	50°	55°	60°	90°	125°	130°	138°
adjacent	alternate	corresponding	exterior	interior	right	same side	vertical