

Geometry 1-2
Class-Notes

Name _____
Date _____ Period _____

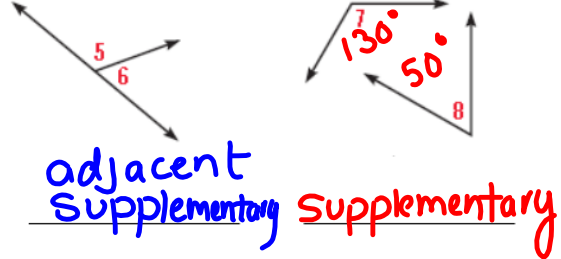
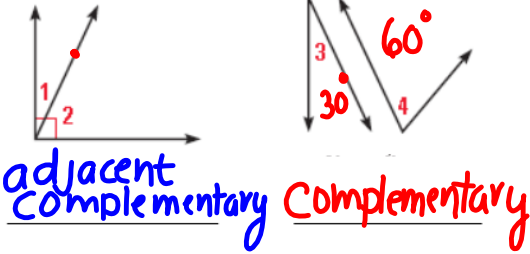
1.5 Describe Angle Pair Relationships

90° C
180° S

Goal • To identify adjacent, vertical, complementary, and supplementary angles. Find measures of pairs of angles.

Complementary angles = 90°

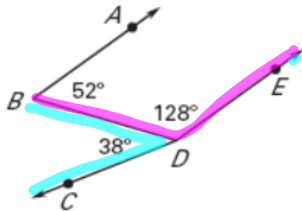
Supplementary angles = 180°



Adjacent Angles: Two angles with a common vertex and a common side but no common interior points.

Example 1: Identify complements and supplements

In the figure, name a pair of complementary angles, a pair of supplementary angles, and a pair of adjacent angles



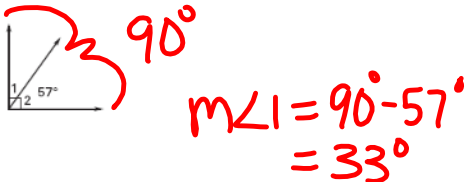
180° Supplementary Angles: $\angle ABD + \angle BDE$
 $52^\circ + 128^\circ = 180^\circ$

90° Complementary Angles: $\angle ABD + \angle BDC$
 $52^\circ + 38^\circ = 90^\circ$

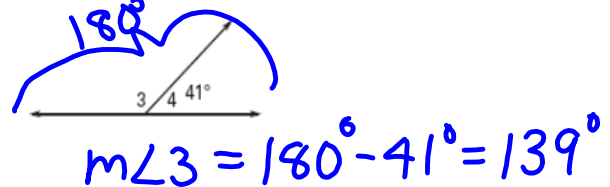
Adjacent Angles: $\angle BDE + \angle BDC$

Example 2: Find measures of complements and supplements

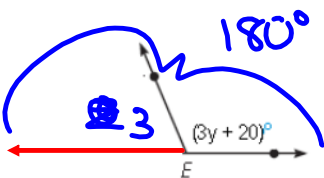
a. Given that $\angle 1$ is a complement of $\angle 2$ and $m\angle 2 = 57^\circ$, find $m\angle 1$.



c. Given that $\angle 3$ is supplement of $\angle 4$ and $m\angle 4 = 41^\circ$, find $m\angle 3$.



b. Find the supplement of $\angle E$.



$$m\angle 3 = 180 - (3y + 20)$$

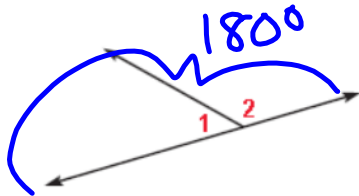
$$= 180^\circ - 3y - 20^\circ$$

$$= (160 - 3y)^\circ$$

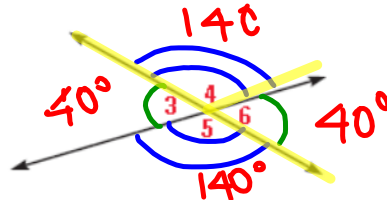
Angle Pairs:

A **LINEAR PAIR** of angles is formed by two opposite **rays**. The two angles are adjacent and form a **straight** line.

VERTICAL ANGLES are formed by **intersecting** lines and they are **"across"** from each other. **Vertical** angles are **congruent**.



Linear pair is a pair of adjacent supplementary \angle 's.



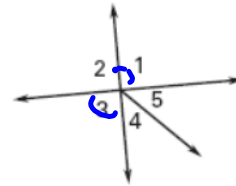
$$\begin{array}{l} \angle 3 + \angle 5 \\ \angle 4 + \angle 6 \end{array} \quad \begin{array}{l} \angle 3 \cong \angle 5 \\ \angle 4 \cong \angle 6 \end{array}$$

Example 3: *Identify angle pairs*

Identify all of the **linear pairs** and all of the **vertical angles** in the figure at the right.

a. **Vertical angles** $\angle 1 + \angle 3$

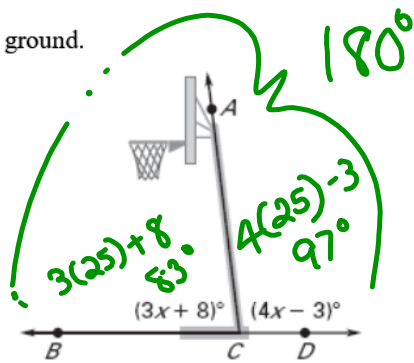
b. **Linear pairs** $\angle 2 + \angle 1, \angle 2 + \angle 3$



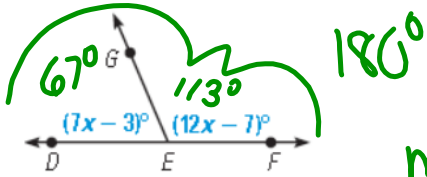
Example 3: *Find angle measures*

a. The basketball pole forms a pair of supplementary angles with the ground. Find $m\angle BCA$ and $m\angle DCA$.

$$\begin{aligned} m\angle BCA + \angle DCA &= 180^\circ \\ 3x + 8 + 4x - 3 &= 180^\circ \\ 7x + 5 &= 180 \\ -5 \quad -5 \\ \hline 7x &= 175 \\ x &= 25 \end{aligned}$$

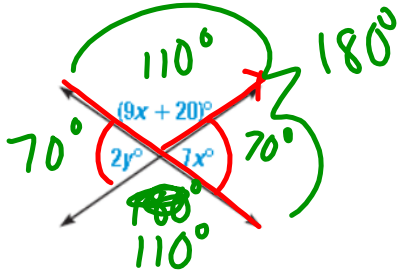


b. Find $m\angle DEG$ and $m\angle GEF$.



$$\begin{aligned}
 m\angle DEG + m\angle GEF &= 180^\circ \\
 7x - 3 + 12x - 7 &= 180^\circ \\
 19x - 10 &= 180^\circ \\
 19x &= 190 \\
 x &= 10
 \end{aligned}$$

c. Find the measure of the four angles.

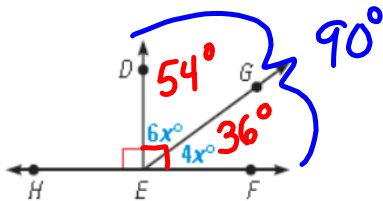


$$\begin{aligned}
 9x + 20 + 7x &= 180^\circ \\
 16x + 20 &= 180^\circ \\
 -20 &\quad -20
 \end{aligned}$$

$$\begin{aligned}
 2y &= 70 \\
 \frac{2y}{2} &= \frac{70}{2} \\
 y &= 35^\circ
 \end{aligned}$$

$$\frac{16x}{16} = \frac{160}{16} \quad \boxed{x=10}$$

d. Find $m\angle DEG$ and $m\angle GEF$.



$$\begin{aligned}
 m\angle DEG + m\angle GEF &= 90^\circ \\
 6x + 4x &= 90^\circ \\
 10x &= 90^\circ \\
 x &= 9^\circ
 \end{aligned}$$

Cornell Notes	Topic/Objective:	Name:
		Class/Period:
		Date:
Essential Question:		
Questions:	Notes:	
	In your own words, using complete sentences answer the questions.	Draw a picture to represent each situation.
1. What are complementary angles?		
2. What are supplementary angles?		
3. What are adjacent angles?		
4. What is a linear pair of angles?		
5. What are vertical angles?		
Summary: <i>Homework: 1.5 Practice A Worksheet</i>		

