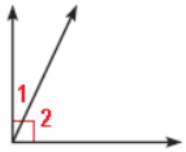
Geometry 1-2
Class-Notes

Name_____
Date_____Period_____

1.5 Describe Angle Pair Relationships

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

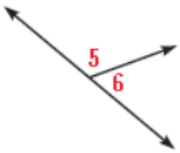
Complementary angles = 90°



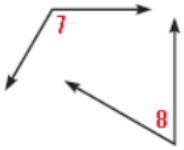
adjacent

non-adjacent

Supplementary angles = 180°



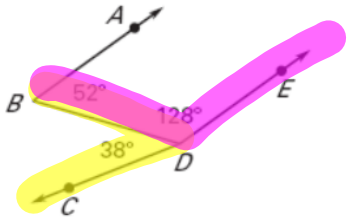
adjacent



non-adjacent

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



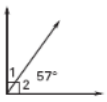
Supplementary Angles: ∠EDB + ∠ABD (180°) 128 + 52 = 180° ✓

Complementary Angles: ∠ABD + ∠BDC (90°) 52 + 38 = 90° ✓

Adjacent Angles: ∠CDB + ∠BDE

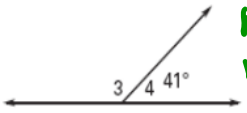
Example 2: ***Find measures of complements and supplements***

a. Given that ∠1 is a complement of ∠2 (90°) and $m\angle 2 = 57°$, find $m\angle 1$.



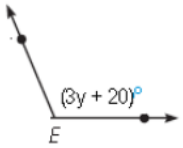
$m\angle 1 = 90° - m\angle 2$
$= 90° - 57°$
$= 33°$

c. Given that ∠3 is supplement (180) of ∠4 and $m\angle 4 = 41°$, find $m\angle 3$.



$m\angle 3 = 180 - m\angle 4$
$m\angle 3 = 180 - 41$
$= 139°$

b. Find the supplement of ∠E.



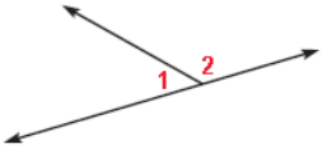
$\angle E_{SUPP} = 180 - m\angle E$
$= 180 - (3y + 20)$
$= 180 - 3y - 20$
$= 160 - 3y$

Angle Pairs: 180°

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

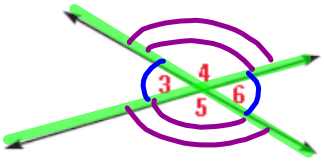
VERTICAL ANGLES are formed by intersecting lines and they are "across" from each other. Vertical angles are congruent.

Linear Pair (180°)



$m\angle 1 + m\angle 2 = 180°$

Vertical Angles



$\angle 3 \cong \angle 6$

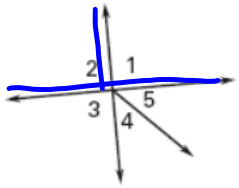
$\angle 4 \cong \angle 5$

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 $\angle 3$ & $\angle 2$, $\angle 2$ & $\angle 1$



Example 3: ***Find angle measures***

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

$\angle BCD = \angle BCA + \angle ABD$

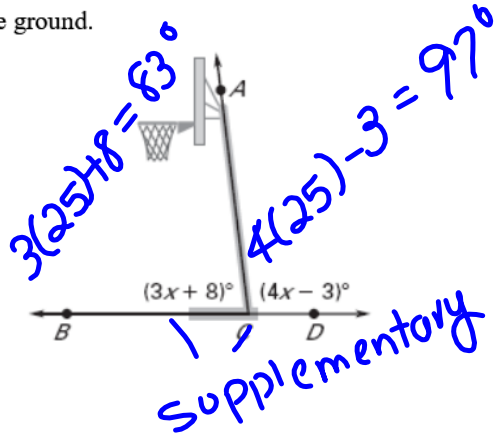
$180° = 3x + 8 + 4x - 3$

$180 = 7x + 5$

$-5 \quad -5$

$175 = 7x$

$x = 25$

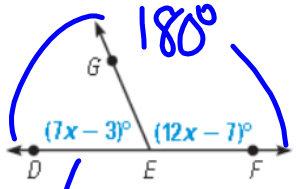


$3(25)+8 = 83°$

$4(25)-3 = 97°$

supplementary

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



180°

$\angle DEF = \angle DEG + \angle GEF$

$180° = 7x-3 + 12x-7$

$180° = 19x - 10$

$+10 \quad +10$

$190° = 19x$

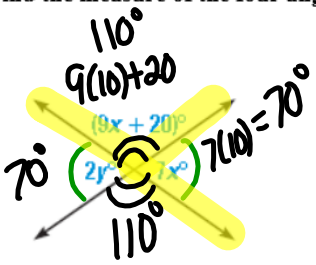
$\frac{190°}{19} = \frac{19x}{19}$ $x = 10$

$7(10)-3$

$70° + 113°$

$12(10)-7$

c. Find the measure of the four angles.



$110°$

$9(10)+20$

$7(10)=70°$

$9x+20+7x=180°$

$16x+20=180°$

$-20 \quad -20$

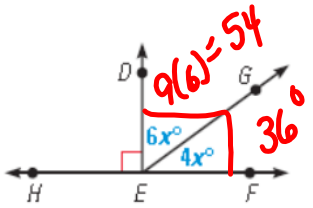
$16x = 160$

$x = 10°$

$\frac{2y}{2} = \frac{70°}{2}$

$y = 35°$

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



$9(6)=54$

$36°$

$\angle DEF = \angle DEG + \angle GEF$

$90° = 6x + 4x$

$90° = 10x$

$9 = x$

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?	Two angles that add up to 90°	NON ADJ. 42° 48° Adjacent 45° 45°
2. What are supplementary angles?		
3. What are adjacent angles?	Two angles that share a vertex and a side.	1 2
4. What is a linear pair of angles?	Two angles that are adjacent and supplementary	1 2
5. What are vertical angles?		

Summary: *Homework: 1.5 Practice A Worksheet*