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8-3-2006

### Finding Angles using Project Interactive

Karie Shaw

*The College at Brockport*

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**Karie Shaw**  
**Math 8**

**Standards:**

8.G.1 Identify pairs of vertical angles as congruent

8.G.4 Determine angle pair relationships when given two parallel lines cut by a transversal.

8.G.5 Calculate the missing angle measurements when given two parallel lines cut by a transversal.

8.G.6 Calculate the missing angle measurements when given two intersecting lines and an angle

**Materials:** Laptop

Overhead screen

LCD projector

**Bell Work:** Students will revisit right, straight, obtuse, acute, vertical, complimentary, and supplementary angles.

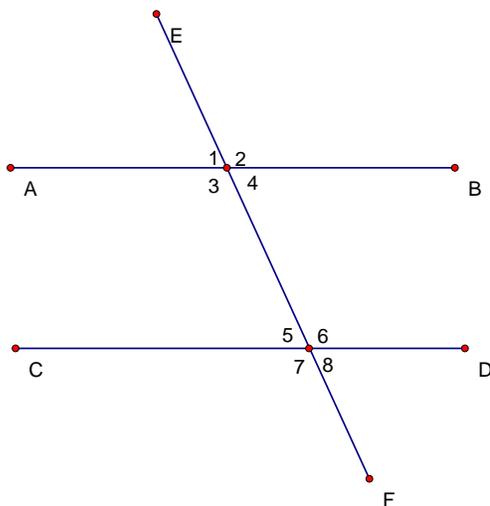
**Essential Question:** How do we identify the different angle relationship when you have two parallel lines cut by a transversal?

**Objective:** Students will be able to identify the following angle relationship.

- Alternate interior angles
- Alternate exterior angles
- Adjacent angles
- Same-side interior
- Same –side exterior
- Corresponding angles
- Adjacent angles

**Teacher Directive Lessons:** Given several two parallel lines cut by transversal students will practice drawing the zigzag to determine the two pairs of four congruent angles. (Example below)

- When illustrating the zigzag draw a line connecting  $\angle 1$  and  $\angle 4$ . Draw a second line connecting  $\angle 4$  and  $\angle 5$ . Draw the third line connecting  $\angle 5$  and  $\angle 8$ . The three connected lines should look like a zigzag or a crooked Z. Follow the same procedure for the remaining four angles.



The students will then be asked to complete the guided worksheet “practicing the zigzag” in preparation of working with project accelerate. After attempting to complete the worksheet independently, the teacher will go over the worksheet and answer any misconceptions the students may have or redefine any vocabulary terms before taking them to the computer lab.

**Work Time:** Students will be instructed to log on to the computer, click on internet explore where they will input the following address.

**Address:** <http://www.shodor.org/interactivate/activities/angles/index.html>

This is a model of two parallel lines cut by a transversal. They will use the model to identify right, obtuse, acute, vertical, corresponding, supplementary, alternate-interior, alternate exterior, same-side interior, same-side exterior, and adjacent angles.

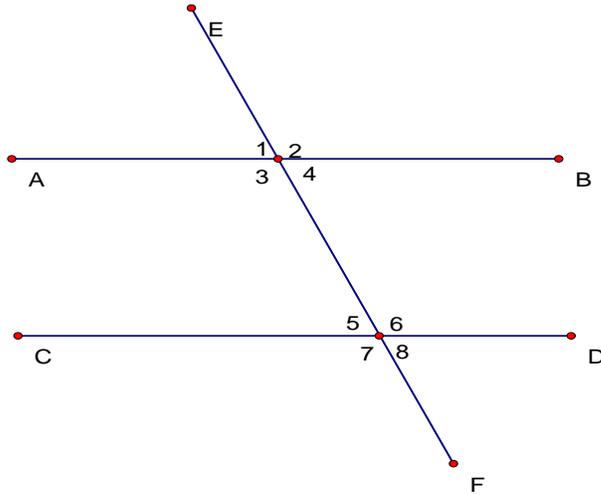
**Closure:** After the computer lab, students will return back to the classroom where they will be expected to complete the following worksheet to be handed in for an assign grade (see attachment).

**Extension:** For homework students are expected to complete the following worksheet with 95% accuracy (see attachment). The teacher will be able to assess her lesson based on the individual grades. Teacher will adjust the lesson based on the class average.

Name: \_\_\_\_\_  
Math 8

Date: \_\_\_\_\_  
Practicing drawing the zigzag

1a) Using the zigzag method name the two pairs of four congruent angles.



Name the four congruent angles:

\_\_\_\_\_

Name the four congruent angles:

\_\_\_\_\_

b) Using the diagram above if the angle measurement of  $\angle 1$  is  $65^\circ$ . Name the three other angles that have the same measurement.

\_\_\_\_\_

c) Since  $\angle 1$  and  $\angle 2$  are supplementary angles. What is the supplement of  $65^\circ$ ? \_\_\_\_\_

d) What are the measurements of  $\angle$ 's 2,3,6,& 7. \_\_\_\_\_

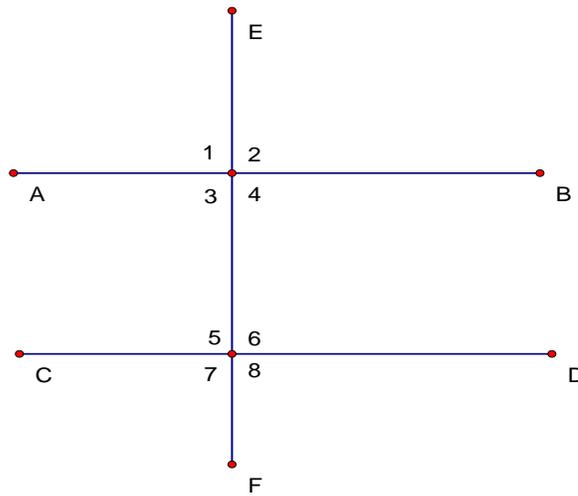
e) The measurement of  $\angle 5$  represents what type of angle? \_\_\_\_\_

f) The measurement of  $\angle 6$  represents what type of angle? \_\_\_\_\_

g) What do you notice about the angle measurement of the same-side exterior?  
\_\_\_\_\_

h) What do you notice about the angle measurement of the same-side interior?  
\_\_\_\_\_

2a) Using the zigzag, answer the following questions.



What is the angle relationship between  $\angle 2$  and  $\angle 3$ . \_\_\_\_\_

What is the angle relationship between  $\angle 3$  and  $\angle 6$ . \_\_\_\_\_

What is the angle relationship between  $\angle 6$  and  $\angle 7$ . \_\_\_\_\_

What is the angle relationship between  $\angle 2$  and  $\angle 7$ . \_\_\_\_\_

What is the angle relationship between  $\angle 2$  and  $\angle 6$ . \_\_\_\_\_

b) Looking at the diagram above, what type of angle is the measurement of  $\angle 4$ .  
\_\_\_\_\_.

c) What do you notice about angles that are adjacent? \_\_\_\_\_

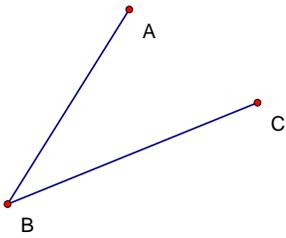
Explain: \_\_\_\_\_

Name: \_\_\_\_\_  
Math

Date: \_\_\_\_\_  
Bell work

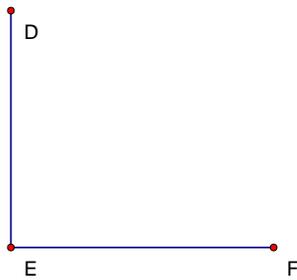
Name the types of angles that are drawn below in the space provided.

1)



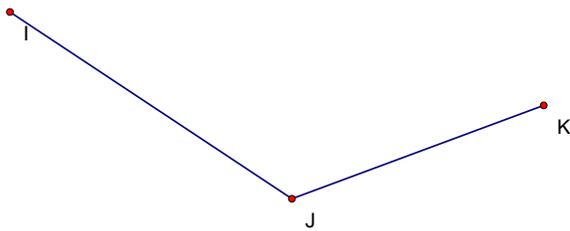
ANS: \_\_\_\_\_

2)



ANS: \_\_\_\_\_

3)



ANS: \_\_\_\_\_

4)



ANS: \_\_\_\_\_

In the space provided give a degree measurement that represents the following types of angles.

5) Acute: \_\_\_\_\_

6) Straight: \_\_\_\_\_

7) Right: \_\_\_\_\_

9) Obtuse: \_\_\_\_\_

Name the complement of each angle degree below.

10)  $23^\circ$ , \_\_\_\_\_

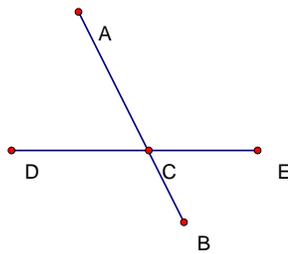
11)  $85^\circ$ , \_\_\_\_\_

Name the supplement of each angle degree below.

12)  $142^\circ$ , \_\_\_\_\_

13)  $105^\circ$ , \_\_\_\_\_

14) Given the  $m\angle ECA$  is  $117^\circ$ , find the following.



a)  $m\angle ECB$  \_\_\_\_\_

b)  $m\angle ACD$  \_\_\_\_\_

c)  $m\angle ACE$  \_\_\_\_\_

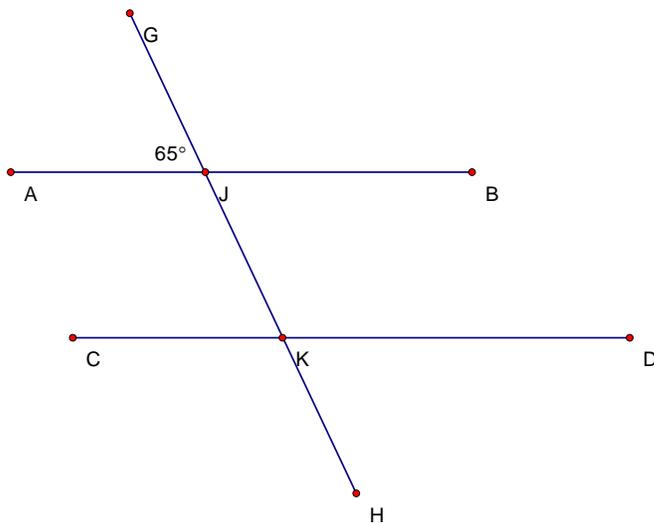
Name: \_\_\_\_\_

Math

Date: \_\_\_\_\_

Class work

1) If the  $m\angle GJA$  is  $65^\circ$ , find the degree measurement of the remaining 7 angles.



$m\angle GJB$  : \_\_\_\_\_

$m\angle AJK$  : \_\_\_\_\_

$m\angle BJK$  : \_\_\_\_\_

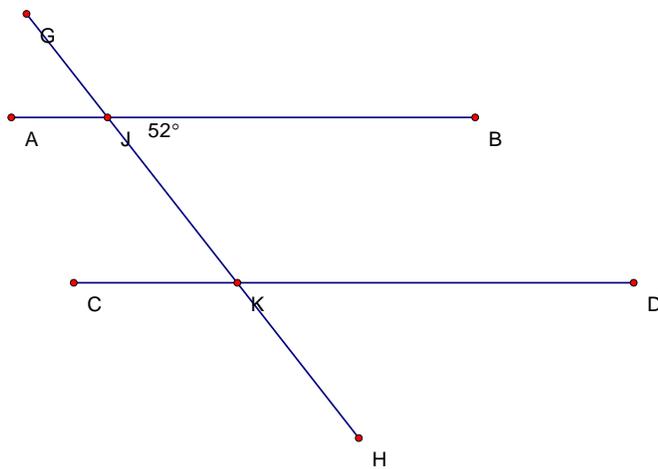
$m\angle CKJ$  : \_\_\_\_\_

$m\angle DKJ$  : \_\_\_\_\_

$m\angle HKC$  : \_\_\_\_\_

$m\angle HKD$  : \_\_\_\_\_

2) If the  $m\angle BJK$  is  $52^\circ$ , find the degree measurement of the remaining 7 angles.



$m\angle AJG$  : \_\_\_\_\_

$m\angle GJB$  : \_\_\_\_\_

$m\angle AJK$  : \_\_\_\_\_

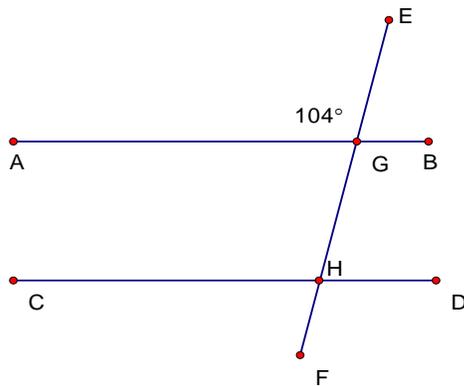
$m\angle CKJ$  : \_\_\_\_\_

$m\angle JKD$  : \_\_\_\_\_

$m\angle HKC$  : \_\_\_\_\_

$m\angle DKH$  : \_\_\_\_\_

3a) If the  $m\angle EJA$  is  $104^\circ$ , find the degree measurement of the remaining 7 angles.



$m\angle EGB$  : \_\_\_\_\_       $m\angle HGA$  : \_\_\_\_\_

$m\angle DHG$  : \_\_\_\_\_       $m\angle BGH$  : \_\_\_\_\_

$m\angle GHC$  : \_\_\_\_\_       $m\angle FHC$  : \_\_\_\_\_

$m\angle DHF$  : \_\_\_\_\_

b) What is the relationship between  $\angle EGA$  and  $\angle DHF$  ? \_\_\_\_\_

c) Name two pairs of supplementary angles. \_\_\_\_\_

d) Identify one pair of alternate interior angles. \_\_\_\_\_

e) Explain why  $\angle G$  &  $\angle H$  are supplementary angles.

\_\_\_\_\_

f) Explain how to identify corresponding angles.

\_\_\_\_\_

g) In the diagram above, name the angle degree of the acute angle. \_\_\_\_\_

h) In the diagram above, name the angle degree of the obtuse angle. \_\_\_\_\_

i) What is the sum of the acute and obtuse angle? \_\_\_\_\_



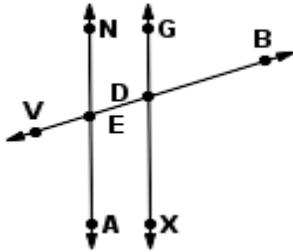
Name: \_\_\_\_\_  
Math

Date: \_\_\_\_\_  
Homework

## Lines and Angles

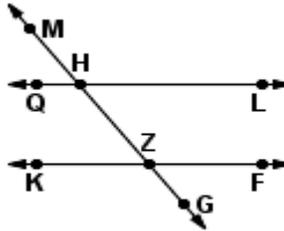
Fill in the blank with an angle.

1.



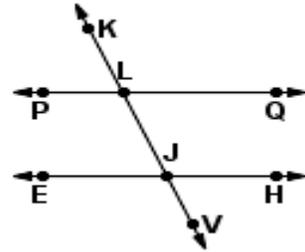
$\overleftrightarrow{NA} \parallel \overleftrightarrow{GX}$   
 $\angle AED$  and \_\_\_\_\_  
are alternate interior  
angles

2.



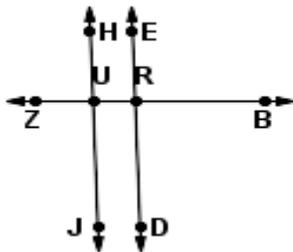
$\overleftrightarrow{QL} \parallel \overleftrightarrow{KF}$   
 $\angle KZH$  and \_\_\_\_\_  
are vertical angles

3.



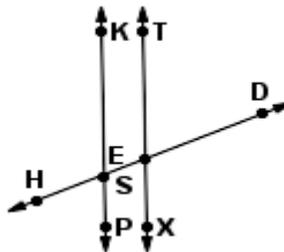
$\overleftrightarrow{PQ} \parallel \overleftrightarrow{EH}$   
 $\angle QLJ$  and \_\_\_\_\_  
are alternate interior  
angles

4.



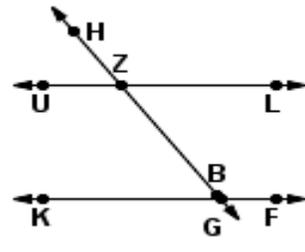
$\overleftrightarrow{HJ} \parallel \overleftrightarrow{ED}$   
 $\angle ZUJ$  and \_\_\_\_\_  
are vertical angles

5.



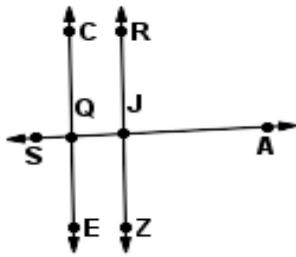
$\overleftrightarrow{KP} \parallel \overleftrightarrow{TX}$   
 $\angle KSE$  and \_\_\_\_\_  
are corresponding  
angles

6.



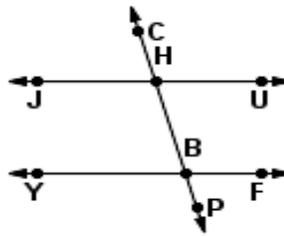
$\overleftrightarrow{UL} \parallel \overleftrightarrow{KF}$   
 $\angle HZL$  and \_\_\_\_\_  
are alternate exterior  
angles

7.



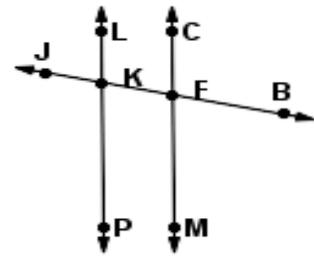
$\overleftrightarrow{CE} \parallel \overleftrightarrow{RZ}$   
 $\angle SQC$  and \_\_\_\_\_  
 are alternate exterior  
 angles

8.



$\overleftrightarrow{JU} \parallel \overleftrightarrow{YF}$   
 $\angle UHB$  and \_\_\_\_\_  
 are corresponding  
 angles

9.



$\overleftrightarrow{LP} \parallel \overleftrightarrow{CM}$   
 $\angle KFM$  and \_\_\_\_\_  
 are vertical  
 angles