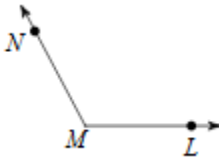
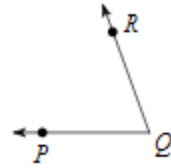


Name the vertex and sides of each angle.

Ex 1)

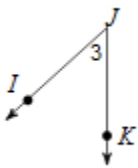


Ex 2)



Name each angle in four ways.

Ex 3)



Ex 4)



Draw and label an angle to fit each description.

Ex 5) an obtuse angle,  $\angle Y$

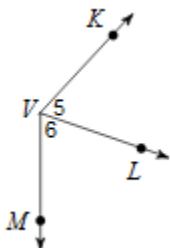
Ex 6) an acute angle,  $\angle JIH$

Ex 7) an right angle,  $\angle 3$

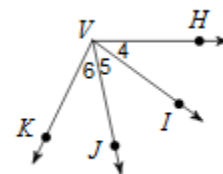
Ex 8) a straight angle,  $\angle CDE$

Name all the angles that have  $V$  as a vertex.

Ex 9)



Ex 10)



## Pairs of Angles

| Types                | Definition | Example |
|----------------------|------------|---------|
| Linear Pair          |            |         |
| Supplementary Angles |            |         |
| Complimentary Angles |            |         |
| Adjacent Angles      |            |         |
| Vertical Angles      |            |         |

Ex 11) One angle of a pair of complementary is given. What the measurement is of its compliment?

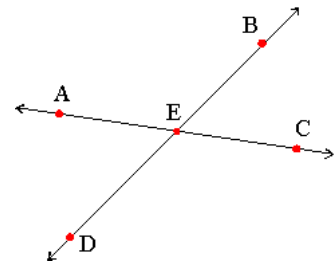
$87^\circ$  \_\_\_\_\_  $23^\circ$  \_\_\_\_\_

Ex 12) One angle of a pair of supplementary is given. What is the measurement of Its supplement?

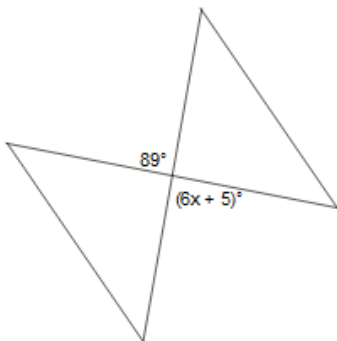
$173^\circ$  \_\_\_\_\_  $92^\circ$  \_\_\_\_\_

Ex 13) Use the diagram to find the following angle pairs.

- a) Linear Pairs
- b) Vertical Angles

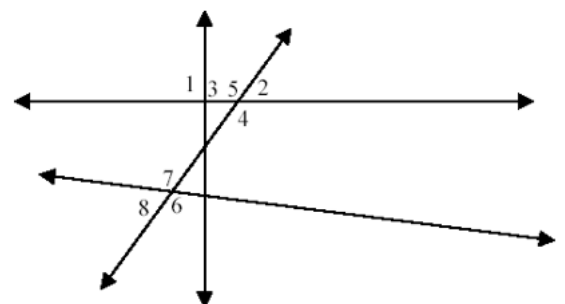


Ex 14) Solve for  $x$ .



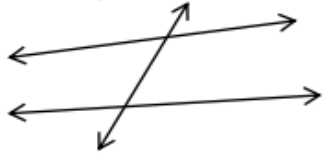
Ex 15) Given  $\angle 1 = 90^\circ$ ,  $\angle 2 = 34^\circ$ ,  $\angle 7 = 127^\circ$

Find  $\angle 3 =$  \_\_\_\_\_,  $\angle 4 =$  \_\_\_\_\_, and  $\angle 8 =$  \_\_\_\_\_



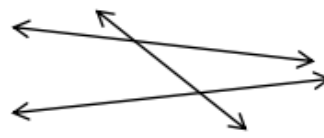
## ANGLE PAIRS in two lines cut by a transversal

### Corresponding angles



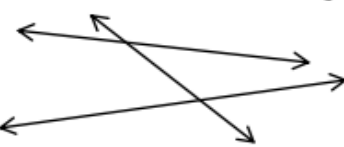
- corresponding positions.

### Consecutive (same side) interior angles



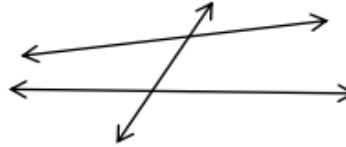
- same side
- between the two lines

### Alternate interior angles



- alternate sides
- between the two lines

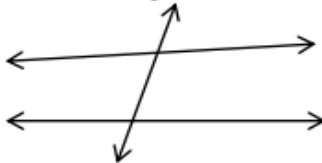
### Alternate exterior angles



- alternate sides
- outside the two lines

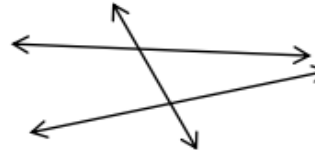
Other angle relationships that you will need to remember...

### Vertical angles



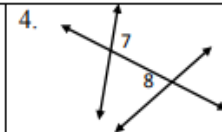
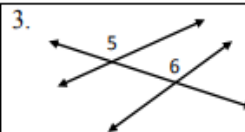
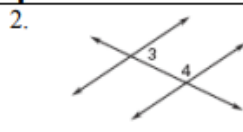
- opposite  $\angle$ s with the same vertex

### Linear Pair

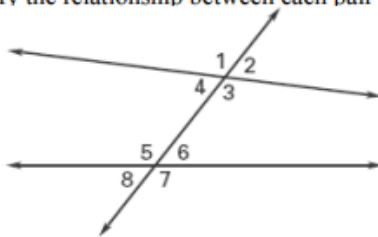


- adjacent  $\angle$ s that make a straight line

**Example 2: Classify the pair of numbered angles.**

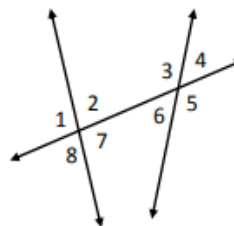


5. Identify the relationship between each pair of angles, if any.



- |                              |                              |
|------------------------------|------------------------------|
| 1) $\angle 1$ and $\angle 7$ | 4) $\angle 3$ and $\angle 8$ |
| 2) $\angle 4$ and $\angle 6$ | 5) $\angle 3$ and $\angle 5$ |
| 3) $\angle 8$ and $\angle 7$ | 6) $\angle 2$ and $\angle 4$ |

6. Identify all pairs of the following angles.

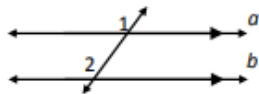


- |                         |                                |
|-------------------------|--------------------------------|
| a. Corresponding angles | b. Alternate interior angles   |
|                         | c. Consecutive interior angles |
|                         | d. Alternate exterior angles   |
|                         | e. Vertical Angles             |
|                         | f. Linear Pairs                |

# WHEN LINES ARE PARALLEL! (magic happens...HARRY POTTER!)

## Corresponding Angles Postulate

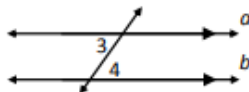
If two parallel lines are cut by a transversal, then pairs of corresponding angles are \_\_\_\_\_.



| Statements                     | Reasons |
|--------------------------------|---------|
| 1. $a \parallel b$             | 1.      |
| 2. $\angle \_ \cong \angle \_$ | 2.      |

## Alternate Interior Angles Theorem

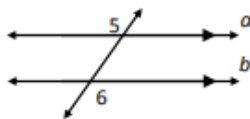
If two parallel lines are cut by a transversal, then pairs of alternate interior angles are \_\_\_\_\_.



| Statements                     | Reasons |
|--------------------------------|---------|
| 1. $a \parallel b$             | 1.      |
| 2. $\angle \_ \cong \angle \_$ | 2.      |

## Alternate Exterior Angles Theorem

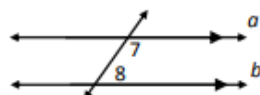
If two parallel lines are cut by a transversal, then pairs of alternate exterior angles are \_\_\_\_\_.



| Statements                     | Reasons |
|--------------------------------|---------|
| 1. $a \parallel b$             | 1.      |
| 2. $\angle \_ \cong \angle \_$ | 2.      |

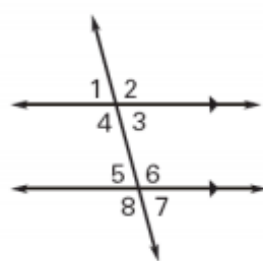
## Consecutive Interior Angles Theorem

If two parallel lines are cut by a transversal, then pairs of consecutive interior angles are \_\_\_\_\_.



| Statements                             | Reasons |
|--|---------|
| 1. $a \parallel b$                     | 1.      |
| 2. $\angle \_$ & $\angle \_$ are supp. | 2.      |
| 3.                                     | 3.      |

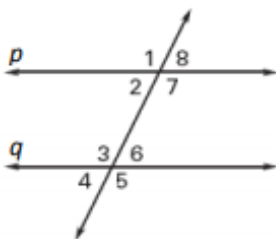
**Example 3:** Use the diagram below to find the angle measures. Explain your reasoning.



- If the  $m\angle 2 = 113^\circ$ , what is the  $m\angle 6$ ?
- If the  $m\angle 4 = 100^\circ$ , what is the  $m\angle 6$ ?
- If the  $m\angle 1 = 84^\circ$ , what is the  $m\angle 3$ ?
- If the  $m\angle 7 = 75^\circ$ , what is the  $m\angle 1$ ?
- If the  $m\angle 3 = 81^\circ$ , what is the  $m\angle 4$ ?
- If the  $m\angle 6 = 111^\circ$ , what is the  $m\angle 3$ ?

**Example 4:** Finding all the angle measures.

If  $p \parallel q$  and  $m\angle 1 = 75^\circ$ , find the measures of all the angles formed by the parallel lines cut by the transversal.

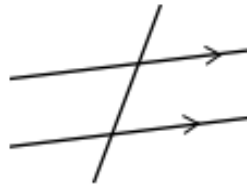


- $m\angle 1 =$                        $m\angle 2 =$   
 $m\angle 3 =$                        $m\angle 4 =$   
 $m\angle 5 =$                        $m\angle 6 =$   
 $m\angle 7 =$                        $m\angle 8 =$

**DO YOU NOTICE A PATTERN???? Describe it!**

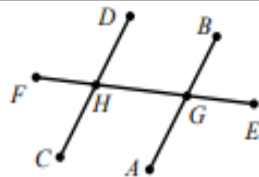
# THE HARRY POTTER SCARI

1. Mark any angle with a dot
2. Find its vertical  $\angle$  and mark it with a dot
3. Copy the same dot pattern on the other parallel
4. Connect the dots



- If they both have a dot or are both blank (SAME)  $\rightarrow$  \_\_\_\_\_
- If one has a dot and the other is blank (DIFFERENT)  $\rightarrow$  \_\_\_\_\_

**Example 5: If  $\overline{DC} \parallel \overline{BA}$ , are the angles congruent or supplementary?**



- |                                  |                                  |                                  |
|----------------------------------|----------------------------------|----------------------------------|
| 1. $\angle DHG$ and $\angle HGA$ | 2. $\angle FHC$ and $\angle DHG$ | 2. $\angle BGE$ and $\angle FHC$ |
| 3. $\angle EGA$ and $\angle GHC$ | 4. $\angle AGH$ and $\angle EGA$ | 5. $\angle DHG$ and $\angle BGH$ |

**Example 6: Solve for  $x$  and explain your reasoning.**

