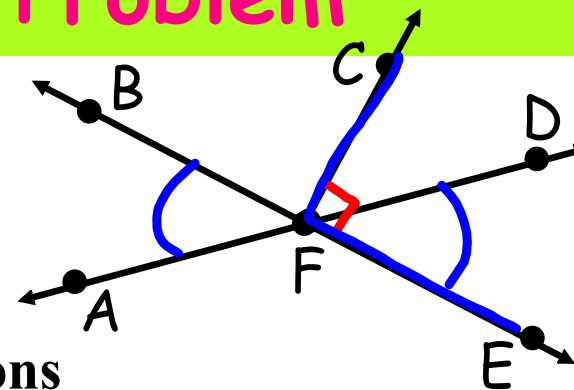


# 10/15/19 - Warm Up Problem

Given:  $\angle CFE$  is a right angle

Prove:  $m\angle AFB + m\angle CFD = 90$



Statements

Justifications

1.  $\angle CFE$  is a right angle

Given

2.  $m\angle CFE = 90$

Def of Right angle

3.  $m\angle DFE = m\angle AFB$

Vertical angles theorem

4.  $m\angle CFD + m\angle DFE = m\angle CFE$

~~Segment add.~~ Angle add. Postulate

5.  $m\angle CFD + m\angle DFE = 90$

Subst. Prop

6.  $m\angle CFD + m\angle AFB = 90$

Subst. Prop

## Section 3.2 - Properties of Parallel Lines

**Goals:** Determine measures of angles formed by parallel lines and a transversal

### Investigating Parallel Lines and Angle Pairs

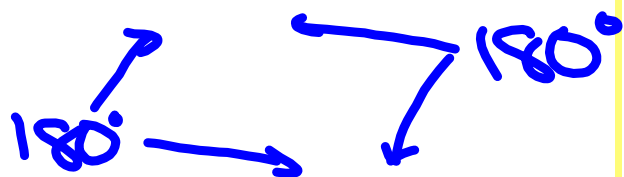
Go to this address:

<https://www.geogebra.org/m/kgberdnm>

Move point K until the angle measures on the green line match the angle measures on the red line.

How would you describe the green line and the red line now once you get the angles to match?

GeoGe



$$\begin{array}{r} 132 \\ + 48 \\ \hline 180 \end{array}$$

### Corresponding Angles Theorem

If a transversal intersects two parallel lines, then corresponding angles are...

**Congruent**

### Alternate Exterior Angles Theorem

If a transversal intersects two parallel lines, then alternate exterior angles are...

**Congruent**

### Alternate Interior Angles Theorem

If a transversal intersects two parallel lines, then alternate interior angles are...

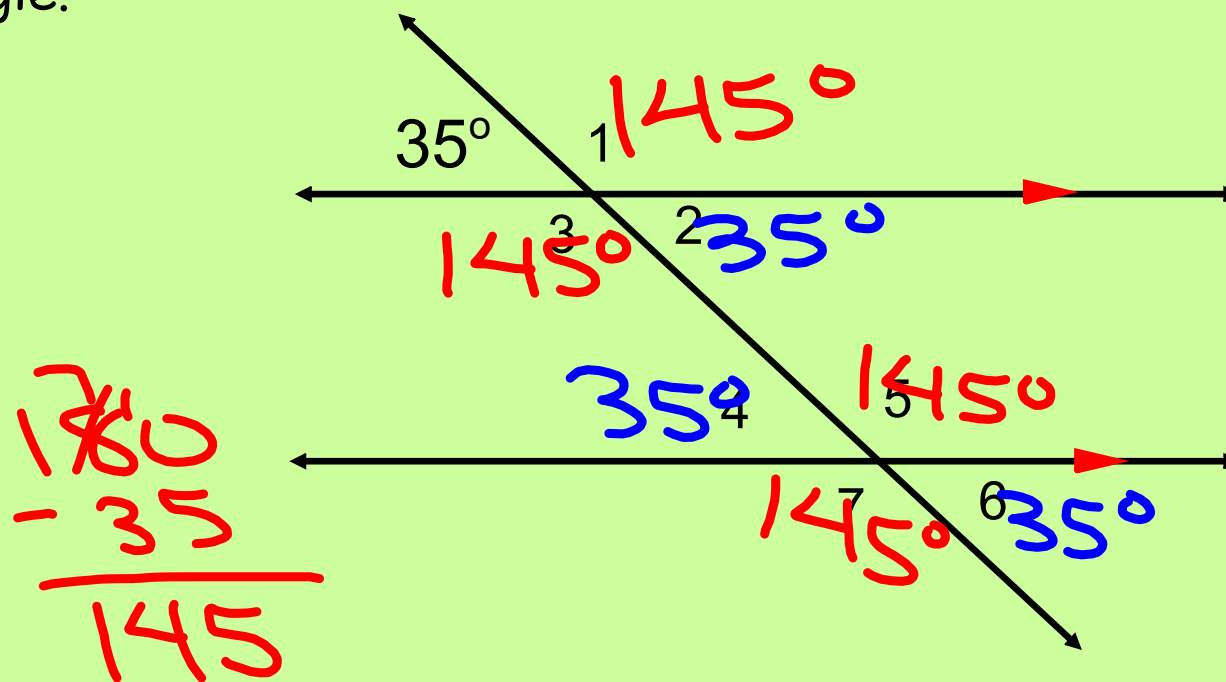
**Congruent**

### Same-Side Interior Angles Postulate

If a transversal intersects two parallel lines, then same-side interior angles are...

**Supplementary**

Using the given angle, find the measure of each other numbered angle.



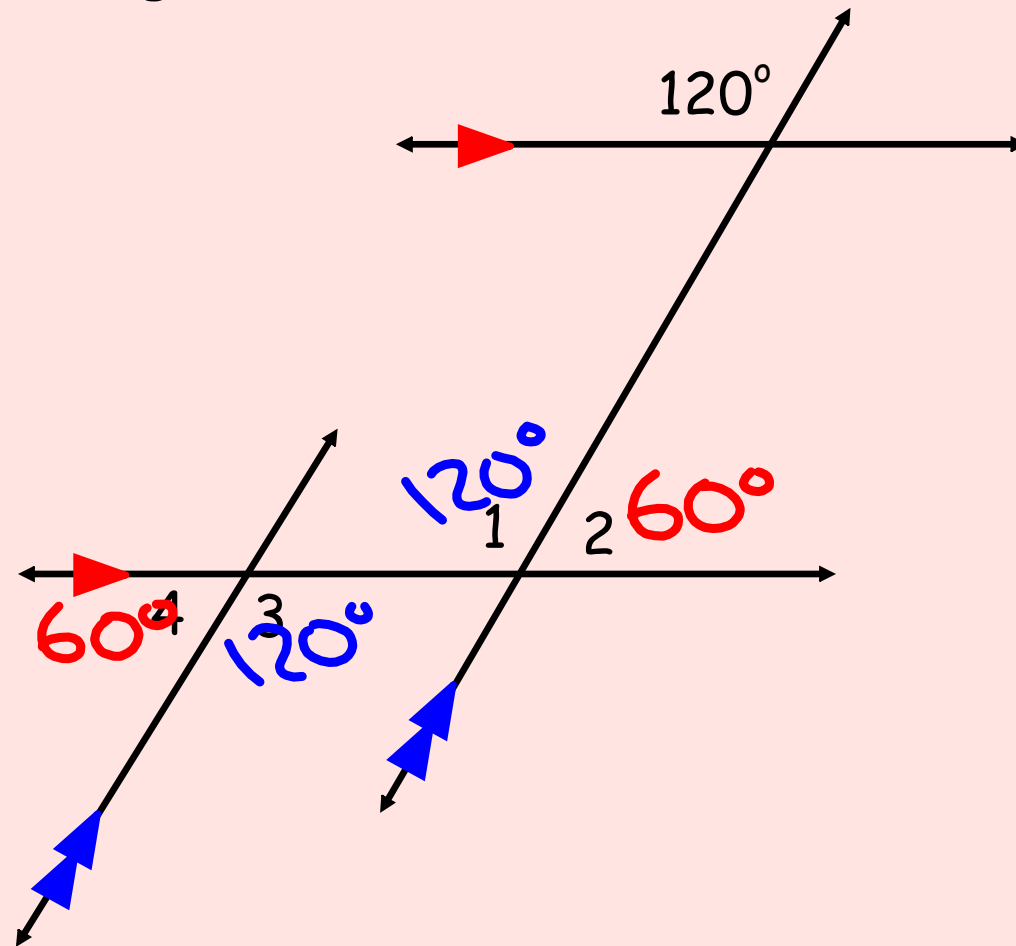
Find the measure of each angle.

$$m\angle 1 = 120^\circ$$

$$m\angle 2 = 60^\circ$$

$$m\angle 3 = 120^\circ$$

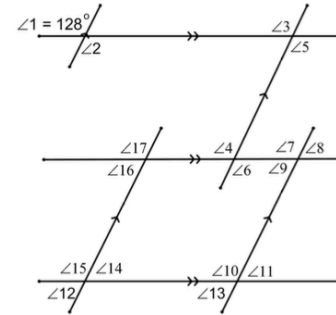
$$m\angle 4 = 60^\circ$$



**Assignment:**  
 Concept 7 Worksheet  
 (front)

Identify each pair of angles as corresponding, alternate interior, alternate exterior, same-side interior, vertical, or linear pair.

- |                                |                                |
|--------------------------------|--------------------------------|
| 1. $\angle 2$ and $\angle 5$   | 2. $\angle 5$ and $\angle 4$   |
| <i>Corr.</i>                   | <i>Alt. Int.</i>               |
| 3. $\angle 7$ and $\angle 8$   | 4. $\angle 6$ and $\angle 9$   |
| <i>Linear Pair</i>             | <i>SS Int.</i>                 |
| 5. $\angle 8$ and $\angle 13$  | 6. $\angle 14$ and $\angle 10$ |
| 7. $\angle 17$ and $\angle 4$  | 8. $\angle 4$ and $\angle 6$   |
| 9. $\angle 14$ and $\angle 13$ | 10. $\angle 6$ and $\angle 3$  |



Find the measure of each angle. Justify your answer by filling in the second blank with the name of the relevant angle pair.

11.   
 $m\angle 1 = \underline{\hspace{2cm}}$  because it is   
 \_\_\_\_\_ with  $118^\circ$    
 $m\angle 2 = \underline{\hspace{2cm}}$  because it is   
 \_\_\_\_\_ with  $118^\circ$

12.   
 $m\angle 1 = \underline{\hspace{2cm}}$  because it is   
 \_\_\_\_\_ with  $72^\circ$    
 $m\angle 2 = \underline{\hspace{2cm}}$  because it is   
 \_\_\_\_\_ with  $72^\circ$

13.   
 $m\angle 1 = \underline{\hspace{2cm}}$  because it is   
 \_\_\_\_\_ with  $127^\circ$    
 $m\angle 2 = \underline{\hspace{2cm}}$  because it is   
 \_\_\_\_\_ with  $127^\circ$

14. Find the measure of angle labeled with a variable.
- $x = \underline{\hspace{2cm}}$   
 $y = \underline{\hspace{2cm}}$   
 $z = \underline{\hspace{2cm}}$   
 $w = \underline{\hspace{2cm}}$

