

Name key  
Block \_\_\_\_\_

Date \_\_\_\_\_  
Math 8 Unit 6

## Unit 6 Study Guide Vocabulary

\* Congruent: EQUAL

### Angle Pairs

Complementary:

Supplementary:

\* Vertical:

### Angles Formed by Parallel Lines and a Transversal

Parallel:

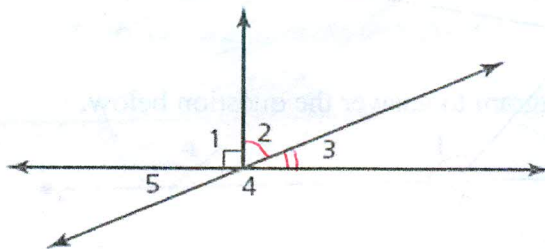
\* Alternate Interior angles:

\* Alternate Exterior Angles:

\* Corresponding angles:

### Sample Questions on Angle Pairs

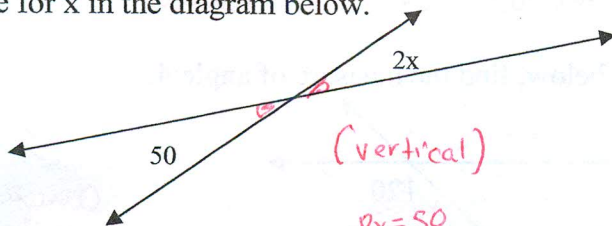
1. What is the relationship between vertical angles? *They are congruent*
2. In the diagram below, which angles are complementary? Supplementary?



*Complementary*  
*∠ 2 and ∠ 3*

*Supplementary*  
*∠ 3 and ∠ 4*

3. If one angle measures 55 degrees, what is the measure of its complement?  
 $90 - 55 = 35^\circ$
4. If one angle measures 65 degrees, what is the measure of its supplement?  
 $180 - 65 = 115^\circ$
5. Solve for x in the diagram below.

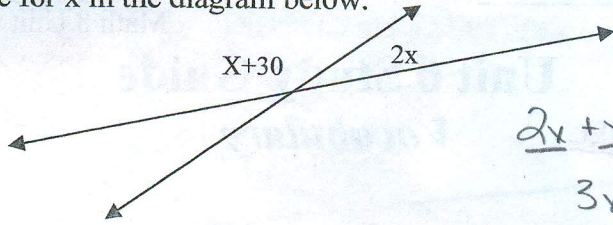


*(vertical)*

$$\frac{2x}{2} = \frac{50}{2}$$

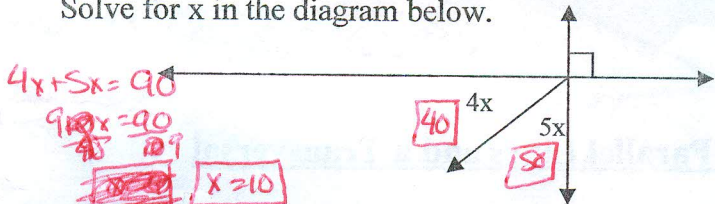
$$x = 25^\circ$$

6. Solve for x in the diagram below.



$$\begin{aligned} 2x + x + 30 &= 180 \\ 3x + 30 &= 180 \\ -30 & -30 \end{aligned}$$

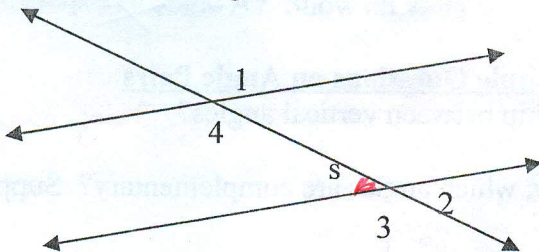
7. Solve for x in the diagram below.



$$\begin{aligned} 3x &= 150 \\ \frac{3x}{3} &= \frac{150}{3} \\ x &= 50 \end{aligned}$$

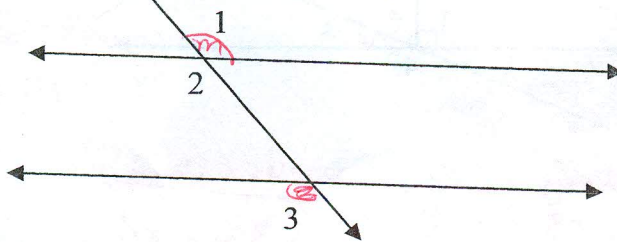
Sample Questions on Angles formed by Parallel Lines and a Transversal

8. Which angles are congruent to s?



Angle 2.

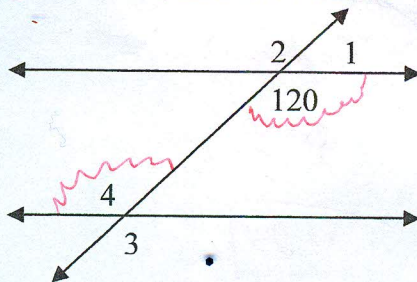
9. Use the diagram to answer the question below.



What is the relationship between 1 and 3? Why?

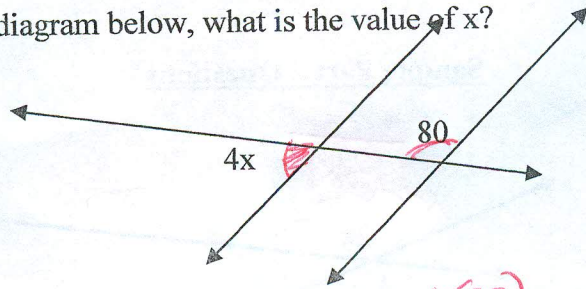
1 and 3 are congruent because they are alternate exterior angles.

10. In the diagram below, find the measure of angle 4.



Angle 4 is 120° because it is an alternate interior angle with 120°.

11. In the diagram below, what is the value of  $x$ ?



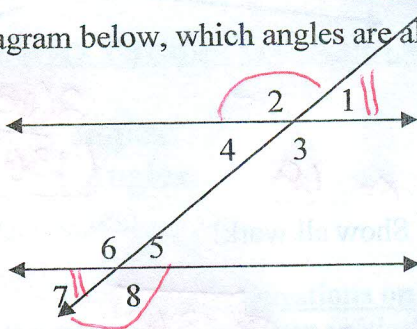
$$\begin{array}{r} 4x + 80 = 180 \\ -80 \quad -80 \\ \hline 4x = 100 \end{array}$$

$$\frac{4x}{4} = \frac{100}{4}$$

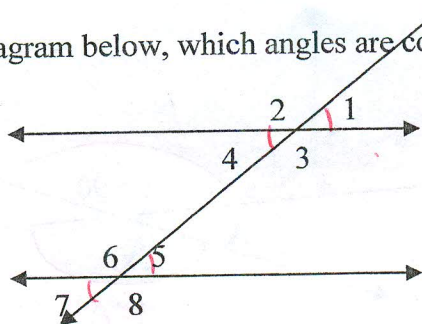
$$x = 25^\circ$$

$$4(25) = 100$$

12. In the diagram below, which angles are alternate exterior angles?



13. In the diagram below, which angles are congruent?

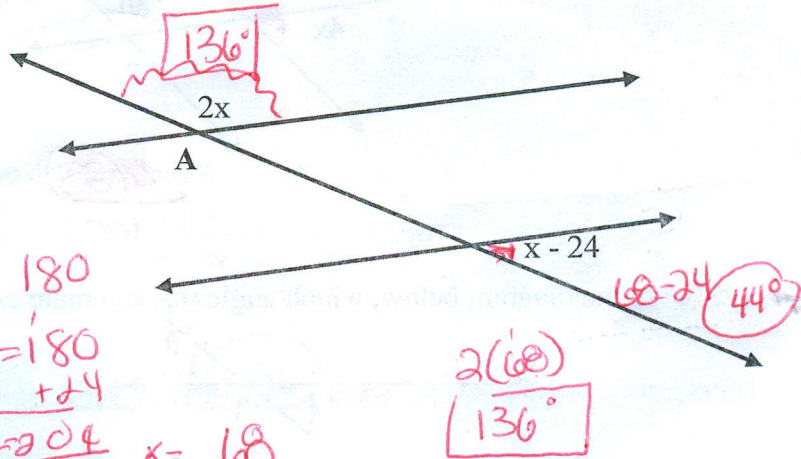


all congruent  
1 and 4  
1 and 5  
1 and 7

all congruent  
6 and 8,  
6 and 2,  
6 and 3

Sample Part 2 Questions

14.



**Part A**

Find the value of  $x$ .

$$2x + x - 24 = 180$$

$$\begin{array}{r} 3x - 24 = 180 \\ +24 \quad +24 \\ \hline 3x = 204 \end{array}$$

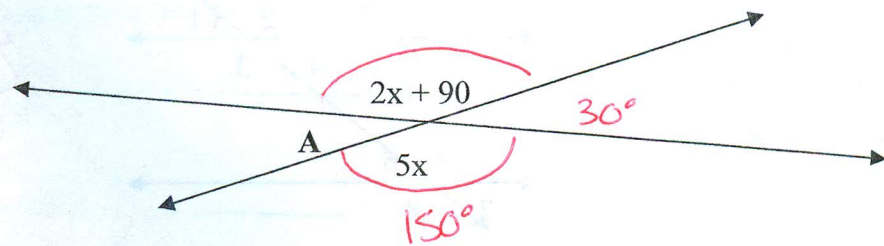
$$\frac{3x = 204}{3} \quad x = 68$$

**Part B**

What is the measure of angle  $A$ ? Show all work!

Angle  $A$  is  $\boxed{136^\circ}$

15.



**Part A**

Find the value of  $x$ .

$$\begin{array}{r} 5x = 2x + 90 \\ -2x \quad -2x \\ \hline 3x = 90 \\ \frac{3x = 90}{3} \end{array}$$

$$\boxed{x = 30}$$

**Part B**

What is the measure of angle  $A$ ? Show all work!

$$\begin{array}{l} 5x \\ 5(30) \\ \hline \boxed{150^\circ} \end{array}$$

Angle  $A$  is

$$\begin{array}{r} 180 \\ -150 \\ \hline \boxed{30^\circ} \end{array}$$