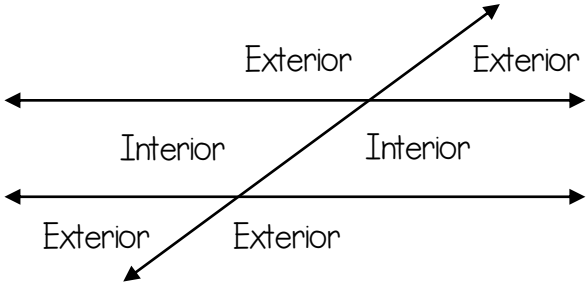
Angle Pairs Created by Parallel Lines Cut by a Transversal

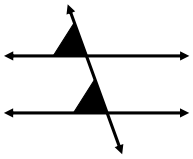
Vocabulary

- Transversal - A line that crosses parallel lines to create pairs of congruent and supplementary angles
- Congruent - Having the same measurement
- Supplementary - Angles that add up to 180°

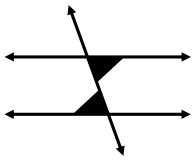
Angle Pairs in Parallel Lines Cut by a Transversal



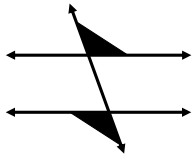
- Corresponding - Angles that lie on the same side of the transversal and on the same side of the parallel lines. These angles are in the same "corner" and are **congruent**.



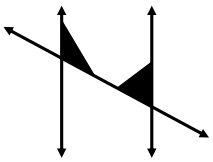
- Alternate Interior - Angles on opposite sides of the transversal and inside the two parallel lines. These angles are **congruent**.



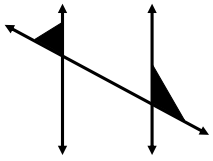
- Alternate Exterior - Angles on opposite sides of the transversal and outside the parallel lines. These angles are **congruent**.



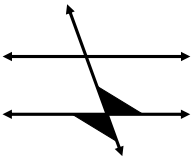
- Same-Side Interior - Angles on the same side of the transversal and inside the parallel lines. These angles are **supplementary**.



- Same-Side Exterior - Angles on the same side of the transversal and outside the parallel lines. These angles are **supplementary**.

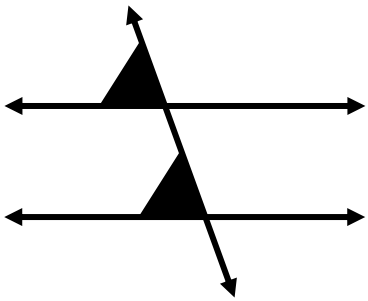
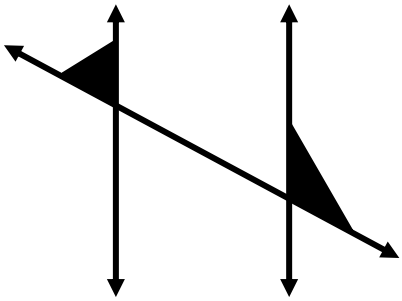
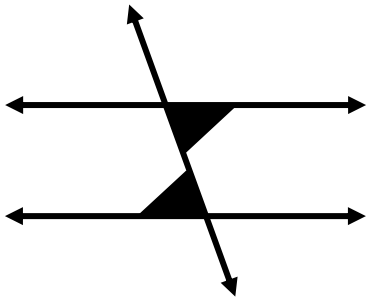
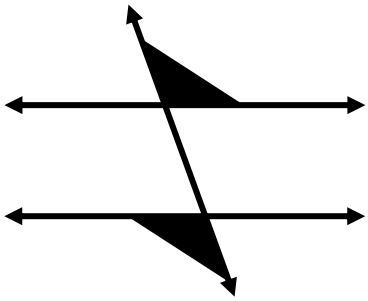
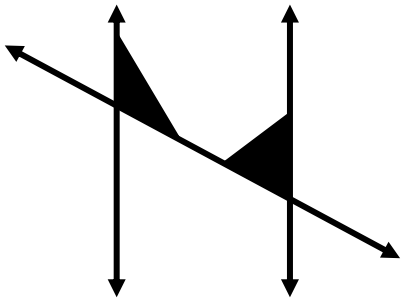
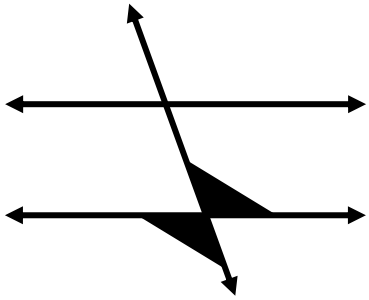
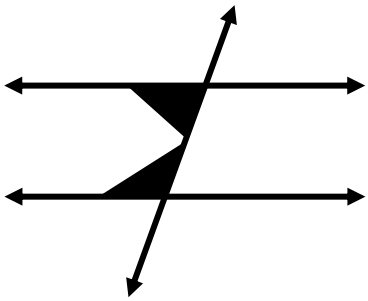
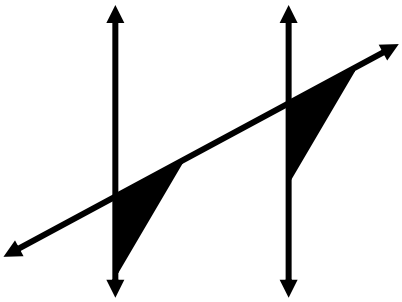
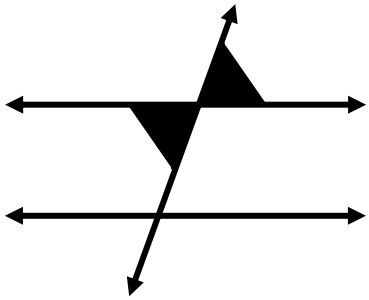
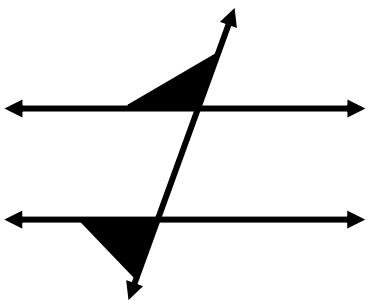
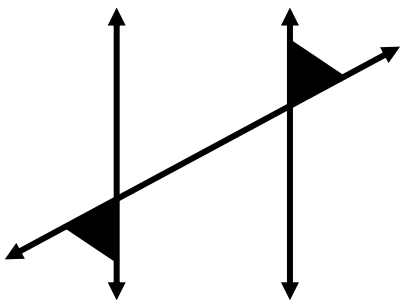
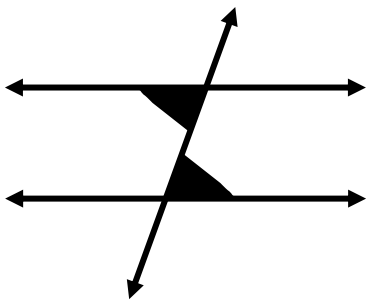


- Vertical - Angles that are across from each other and are formed by any intersecting lines (not just parallel lines and transversals). These angles are **congruent**.



Angle Pairs Created by Parallel Lines Cut by a Transversal

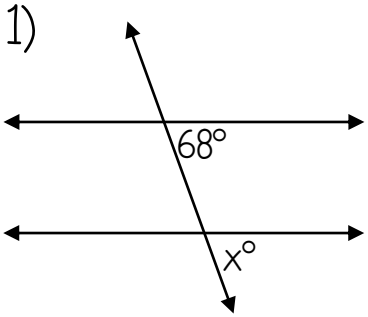
Correctly identify each picture and write the appropriate angle pairs formed by the transversal in the space provided at the top of each picture. The first one is done for you!

Corresponding	Same-Side Exterior	Alternate Interior
		
Alternate Exterior	**Same-Side Interior**	**Vertical**
		
Same-Side Interior	**Corresponding**	**Vertical**
		
Same-Side Exterior	**Alternate Exterior**	**Alternate Interior**
		

Angle Pairs Created by Parallel Lines Cut by a Transversal

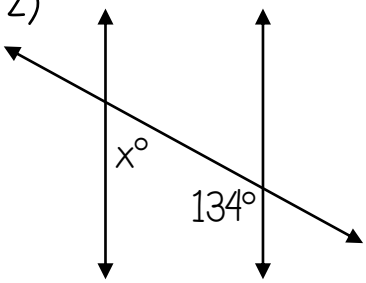
For each set of angles name the angle pair and find the missing measurement

1)



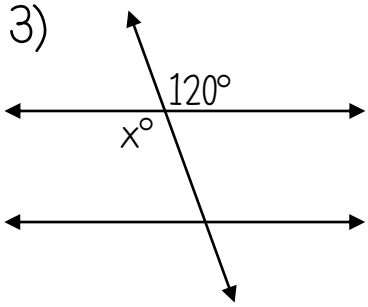
Type of angle pair
Corresponding
These angles are
Congruent
so…x= 68°

2)



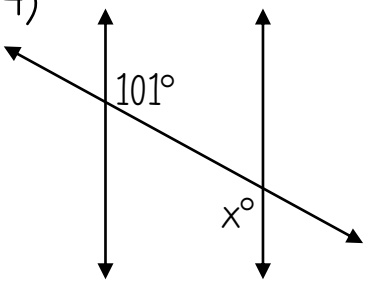
Type of angle pair
Same-Side Interior
These angles are
Supplementary
so…x= 46°

3)



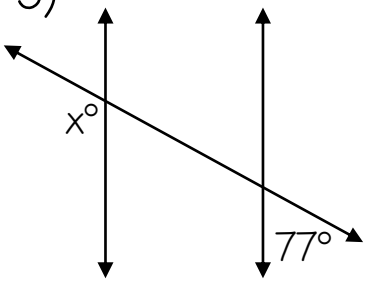
Type of angle pair
Vertical
These angles are
Congruent
so…x= 120°

4)



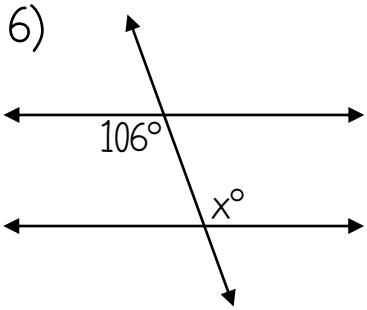
Type of angle pair
Alternate Interior
These angles are
Congruent
so…x= 101°

5)



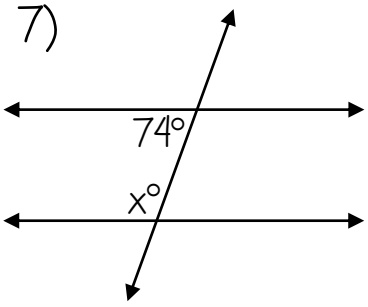
Type of angle pair
Same-Side Exterior
These angles are
Supplementary
so…x= 103°

6)



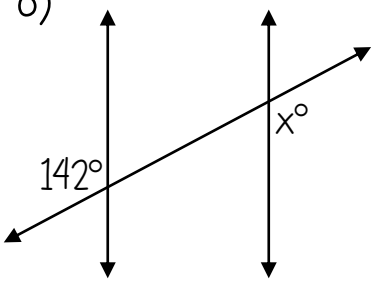
Type of angle pair
Alternate Interior
These angles are
Congruent
so…x= 106°

7)



Type of angle pair
Same-Side Interior
These angles are
Supplementary
so…x= 106°

8)

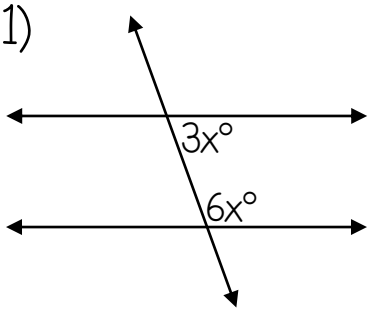


Type of angle pair
Alternate Exterior
These angles are
Congruent
so…x= 142°

Angle Pairs Created by Parallel Lines Cut by a Transversal

For each set of angles name the angle pair, write the equation, solve the equation for x, and plug in x to find the missing angle measurements

1)



Type of angle pair Same-Side Interior

These angles are Supplementary

Equation 3x + 6x = 180

x= 20

Angle Measurements= 60° & 120°

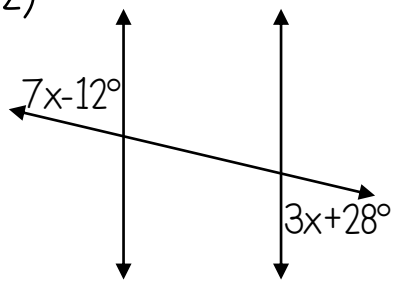
Show your work

3x + 6x = 180
9x = 180
x = 20

3x
3(20)
60°

6x
6(20)
120°

2)



Type of angle pair Alternate Exterior

These angles are Congruent

Equation 7x - 12 = 3x + 28

x= 10

Angle Measurements= 58°

Show your work

7x - 12 = 3x + 28
4x - 12 = 28
4x = 40
x = 10

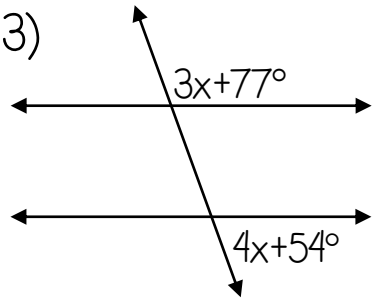
7x - 12
7(10) - 12
70-12
58°

Angle measurements are congruent!

Angle Pairs Created by Parallel Lines Cut by a Transversal

For each set of angles name the angle pair, write the equation, solve the equation for x, and plug in x to find the missing angle measurements

3)



Type of angle pair Same-Side Exterior

These angles are Supplementary

Equation 3x + 77 + 4x + 54 = 180

x= 7

Angle Measurements= 98° & 82°

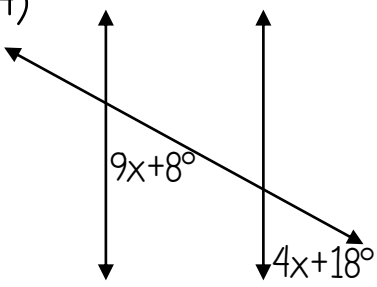
Show your work

3x + 77 + 4x + 54 = 180
7x + 131 = 180
7x = 49
x = 7

3x + 77
3(7) + 77
21 + 77
98°

180 - 98 = 82°

4)



Type of angle pair Corresponding

These angles are Congruent

Equation 9x + 8 = 4x + 18

x= 2

Angle Measurements= 26°

Show your work

9x + 8 = 4x + 18
5x + 8 = 18
5x = 10
x = 2

9x + 8
9(2) + 8
18 + 8
26°

Angle measurements are congruent!