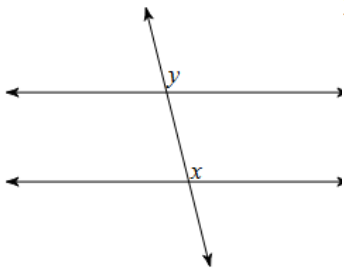


**Unit 4 Lesson 2: Introduction to geometric proofs**

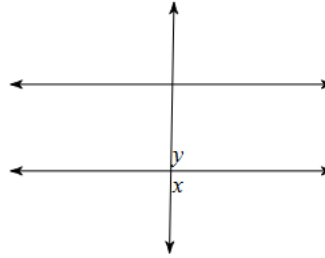
Identify each pair of angles are corresponding, alternate interior, alternate exterior, consecutive interior, consecutive exterior, vertical, or a linear pair. Decide whether they are congruent or supplementary.

1)



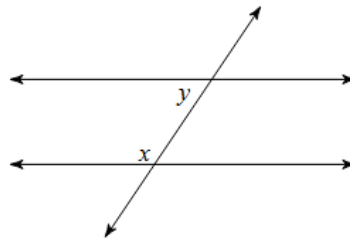
Congruent  
or  
Supplementary

2)



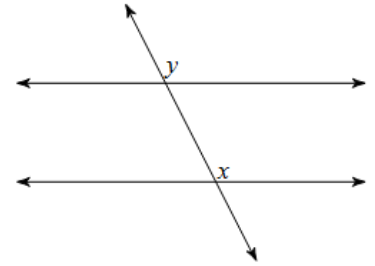
Congruent  
or  
Supplementary

3)



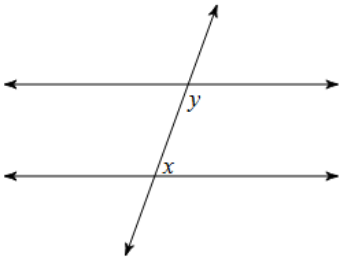
Congruent  
or  
Supplementary

4)



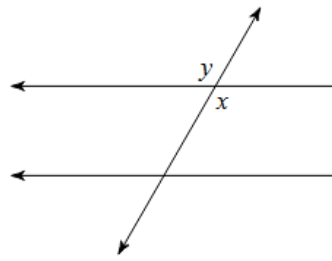
Congruent  
or  
Supplementary

5)



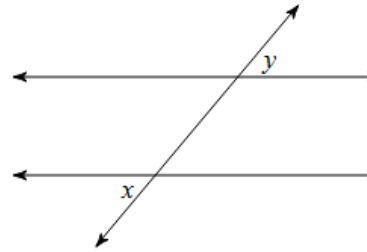
Congruent  
or  
Supplementary

6)



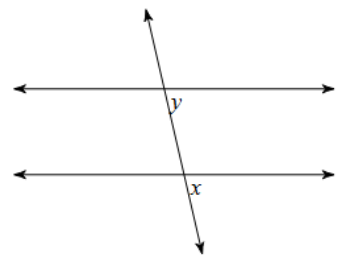
Congruent  
or  
Supplementary

7)



Congruent  
or  
Supplementary

8)



Congruent  
or  
Supplementary

Using the figure below, state the transversal that forms each pair of angles. Then identify the special name for the angle pair.

9)  $\angle 1$  and  $\angle 12$  transversal: \_\_\_\_\_ special name: \_\_\_\_\_

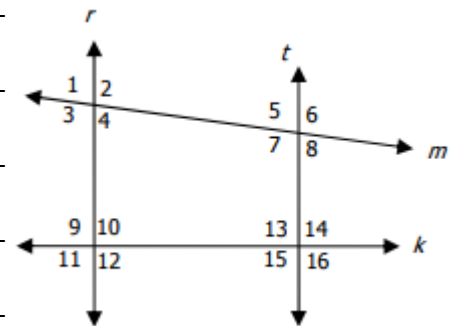
10)  $\angle 2$  and  $\angle 10$  transversal: \_\_\_\_\_ special name: \_\_\_\_\_

11)  $\angle 4$  and  $\angle 9$  transversal: \_\_\_\_\_ special name: \_\_\_\_\_

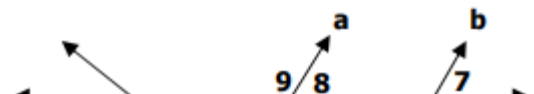
12)  $\angle 6$  and  $\angle 3$  transversal: \_\_\_\_\_ special name: \_\_\_\_\_

13)  $\angle 14$  and  $\angle 10$  transversal: \_\_\_\_\_ special name: \_\_\_\_\_

14)  $\angle 7$  and  $\angle 13$  transversal: \_\_\_\_\_ special name: \_\_\_\_\_



In the figure below  $a \parallel b$ ,  $m\angle 1 = 78^\circ$ , and  $m\angle 2 = 47^\circ$ . Find the measure of each angle.



15)  $\angle 3$ : \_\_\_\_\_

16)  $\angle 4$ : \_\_\_\_\_

17)  $\angle 5$ : \_\_\_\_\_

18)  $\angle 6$ : \_\_\_\_\_

19)  $\angle 7$ : \_\_\_\_\_

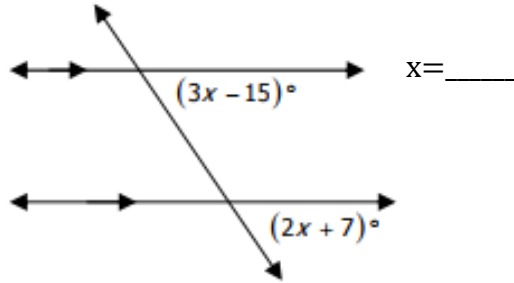
20)  $\angle 8$ : \_\_\_\_\_

21)  $\angle 9$ : \_\_\_\_\_

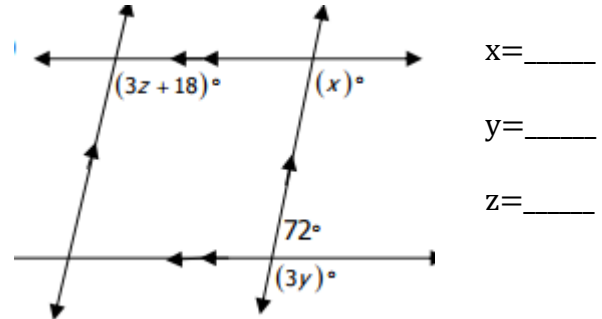
22)  $\angle 10$ : \_\_\_\_\_

Find the missing value of  $x$ ,  $y$  and  $z$ .

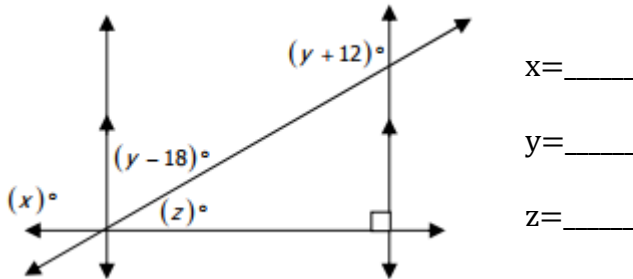
23.



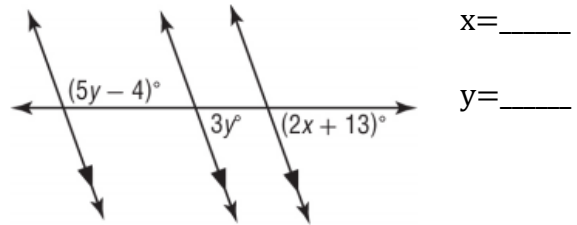
24.



25.

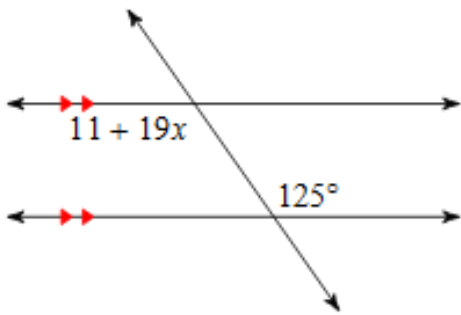


26.



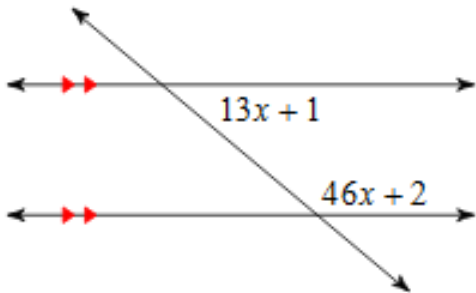
Property	Example
Addition Property of Equality	
Subtraction Property of Equality	
Multiplication Property of Equality	
Division Property of Equality	
Transitive Property	
Reflexive Property	
Substitution	

27) Given the diagram below, prove that  $x = 6$  by justifying each step.



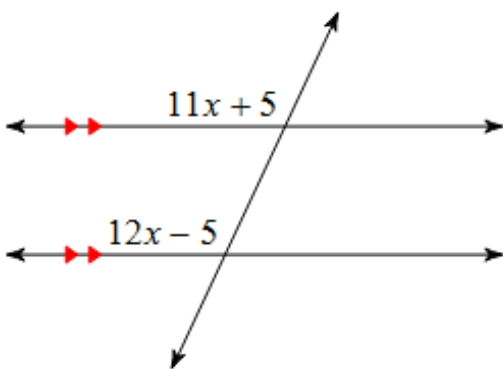
Statement	Reason
$11 + 19x = 125$	
$19x = 114$	
$x = 6$	

28) Given the diagram below, prove that  $x = 3$  by justifying each step.



Statement	Reason
$13x + 1 + 46x + 2 = 180$	
$59x + 3 = 180$	
$59x = 177$	
$x = 3$	

29) Given the diagram below, prove that  $x = 10$ .

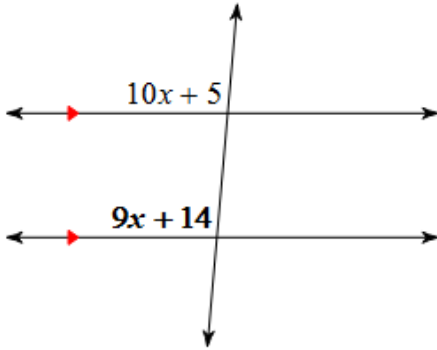


Statement	Reason
$11x + 5 = 12x - 5$	
$5 = x - 5$	
$10 = x$	
$x = 10$	

For each diagram below:

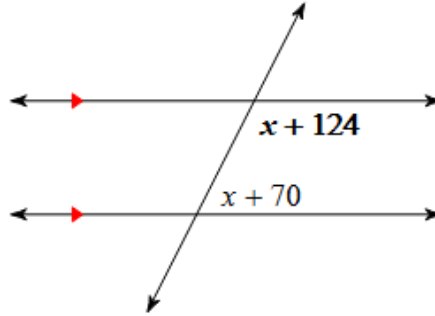
- Identify the relationship between the angles
- State whether the angles are congruent or supplementary
- Find the value of  $x$  that makes the lines parallel
- Find the value of the bolded angle.

1)



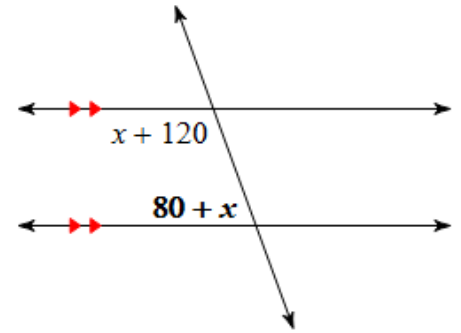
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

2)



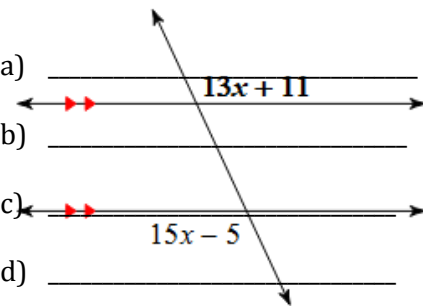
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

3)



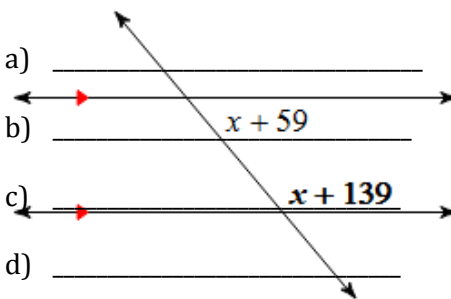
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

4)



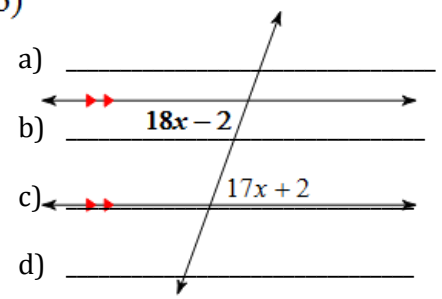
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

5)



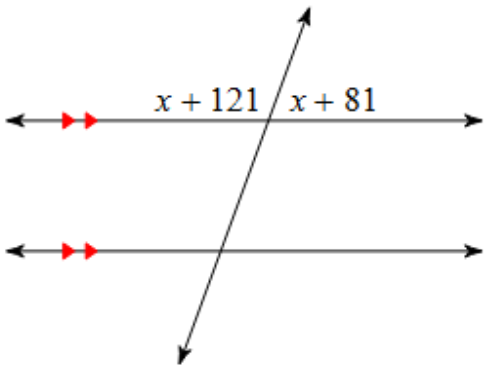
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

6)



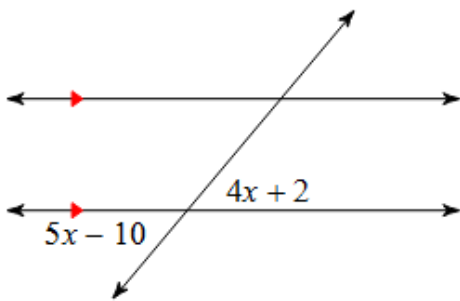
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

7. Given the diagram below, prove that  $x = -11$ .



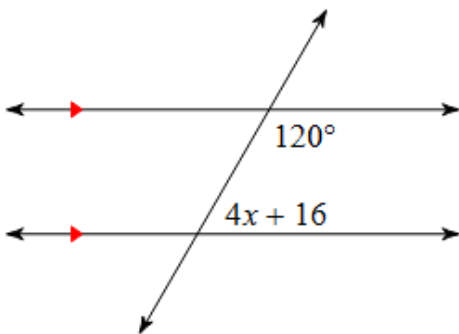
Statement	Reason
1. $x + 121 + x + 81 = 180$	
2.	
3. $2x + 202 = 180$	
4.	
5. $2x = -22$	
6.	
7. $x = -11$	

8. Given the diagram below, prove that  $x = 12$ .



Statement	Reason
1. $5x - 10 = 4x + 2$	
2.	
3. $x - 10 = 2$	
4.	
5. $x = 12$	

9. Given the diagram below, prove that  $x = 11$ .



Statement	Reason
1. $4x + 16 + 120 = 180$	
2. $4x + 136 = 180$	
3.	
4. $4x = 44$	
5.	
6. $x = 11$	