

**Geometry Chapter 2 Review****Describe the pattern in the numbers. Write the next number.**

1.  $-6, -1, 4, 9, \dots$
2.  $100, -50, 25, -12.5, \dots$

**Write the converse, the inverse, and the contrapositive for the given statement.**

3. If they are right angles, then they are congruent.
4. If it is a frog, then it is an amphibian.

**Make a valid conclusion based on the information. Then state whether you used the *Law of Detachment* or the *Law of Syllogism*.**

5. If Margot goes to college, then she will major in Chemistry.  
If Margot majors in Chemistry, then she will need to buy a lab manual.
6. If you decide to go to the football game, then you will miss band practice.  
Tonight, you are going the football game.

**Fill the blanks.**

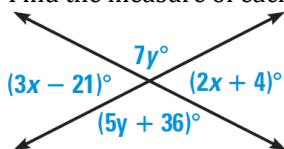
7. If two points lie in a plane, then the \_\_\_\_ containing them lies in the \_\_\_\_.
8. A line contains at least \_\_\_\_ points.
9. Through any three noncollinear points there exists exactly one \_\_\_\_.
10. A plane contains at least \_\_\_\_ noncollinear points.
11. If two lines intersect, then their intersection is exactly one \_\_\_\_.
12. If two planes intersect, then their intersection is a \_\_\_\_.
13. Through any \_\_\_\_ points there exists exactly one \_\_\_\_.

**Solve the equation. Write a reason for each step.**

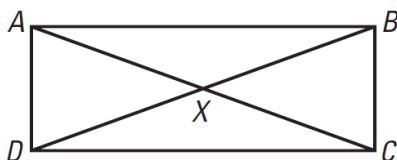
14.  $9x + 31 = -23$
15.  $-7(-x + 2) = 42$
16.  $26 + 2(3x + 11) = -18x$

**Name the statement with the property that it illustrates.**

17. If  $\angle RST \cong \angle XYZ$ , then  $\angle XYZ \cong \angle RST$
18.  $\overline{PQ} \cong \overline{PQ}$
19. If  $\overline{FG} \cong \overline{JK}$  and  $\overline{JK} \cong \overline{LM}$ , then  $\overline{FG} \cong \overline{LM}$ .
20. Find the measure of each angle in the diagram.



21. Write a two-column proof.

**Given:**  $\overline{AX} \cong \overline{DX}$ ,  $\overline{XB} \cong \overline{XC}$ **Prove:**  $\overline{AC} \cong \overline{BD}$ 

**Answers**

1. Add 5; 14
2. Multiply by  $-\frac{1}{2}$ ; 6.25
3. Converse: If the angles are congruent, then they are right angles.  
Inverse: If the angles are not right angles, then they are not congruent.  
Contrapositive: If the angles are not congruent, then they are not right angles.
4. Converse: If it is an amphibian, then it is a frog.  
Inverse: If it is not a frog, then it is not an amphibian.  
Contrapositive: If it is not an amphibian, then it is not a frog.
5. If Margot goes to college, then she will need to buy a lab manual.; Law of Syllogism.
6. You will miss band practice.: Law of Detachment
7. Line; Plane
8. Two
9. Plane
10. Three
11. Point
12. Line
13. Two; Line
14.  $9x + 31 = -23$       Given  
 $9x = -54$               Subtraction  
 $x = -6$                 Division
15.  $-7(-x + 2) = 42$       Given  
 $-x + 2 = -6$             Division  
 $-x = -8$                 Subtraction  
 $x = 8$                   Division
16.  $26 + 2(3x + 11) = -18x$       Given  
 $26 + 6x + 22 = -18x$       Distributive Property  
 $48 + 6x = -18x$             Simplify  
 $48 = -24x$                 Subtraction  
 $-2 = x$                   Division  
 $x = -2$                   Symmetric
17. Symmetric
18. Reflexive
19. Transitive
20.  $54^\circ, 54^\circ, 126^\circ, 126^\circ$
21. 1.  $\overline{AX} \cong \overline{DX}, \overline{XB} \cong \overline{XC}$       Given  
2.  $AX = DX, XB = XC$       Definition of Congruent Segments  
3.  $AX + XC = AC, BX + XD = BD$       Segment Addition Postulate  
4.  $DX + XC = AC, XC + XD = BD$       Substitution  
5.  $AC = BD$                 Substitution (or Transitive)  
6.  $\overline{AC} \cong \overline{BD}$             Definition of Congruent Segments