Chapter 2 Practice Test

Use the diagram to determine if the statement is true or false. Explain your choice.

1. Points A, B, and L are coplanar.

2. \( JL \) lies on plane \( K \).

3. \( DF \) intersects \( AC \).

4. Points D, F, and E are collinear.

Write the converse and inverse of the statement. Give the truth value of each statement as well.

5. If \( m\angle A = 95^\circ \), then \( \angle A \) is obtuse.
   
   Inverse: True or False
   
   Converse: True or False
   
   Contrapositive: True or False

Use the Law of Detachment to determine what you can conclude from the given information, if possible.

6. If it is hailing, then you are not going outdoors. It is hailing.

Use the Law of Syllogism to draw a conclusion to write a new conditional statement that follows from the pair of true statements, if possible.

7. If a number ends in 0, then it is divisible by 10. If a number is divisible by 10, then it is divisible by 5.

Honors Geometry Practice Test
Complete the following proofs. There are reasons and statements supplied to help. You might not need to use all of them.

8. **Given:** \( \angle 1 \) and \( \angle 2 \) are supplementary
   \( \angle 1 \) and \( \angle 3 \) are supplementary

   **Prove:** \( \angle 2 \cong \angle 3 \)

   **Statements**
   - 1. \( \angle 1 \) and \( \angle 2 \) are supplementary.
     \( \angle 1 \) and \( \angle 3 \) are supplementary.
   - 2. \( m\angle 1 + m\angle 2 = 180^\circ \)
     \( m\angle 1 + m\angle 3 = 180^\circ \)
   - 3. ____________________
   - 4. \( m\angle 2 = m\angle 3 \)
   - 5. ____________________

   **Reasons**
   - 1. Given
   - 2. ____________________
   - 3. Transitive Property
   - 4. ____________________
   - 5. Definition of congruent angles

   **Additional Notes**
   - **Definition of Supplementary Angles**
     \( \angle A + \angle C = \angle A + \angle B \)
     \( m\angle 1 + m\angle 2 = m\angle 1 + m\angle 3 \)
   - **Right Angle Congruence Theorem**
     \( \angle A + \angle B = 180^\circ \)
     \( \angle 2 \cong \angle 3 \)
   - **Subtraction Property of Equality**

9. **Given:** \( \angle 1 \) is a right angle.
   \( \angle 5 \) is a right angle.
   \( \angle 5 \) and \( \angle 8 \) are supplementary.

   **Prove:** \( \angle 3 \cong \angle 8 \)

   **Diagram**

   **Given**
   - Definition of supplementary angles
   - Definition of a right angle
   - Right Angle Congruence Theorem (Theorem 2.3)
   - Subtraction Property of Equality
   - Definition of a right angle
   - Right Angle Congruence Theorem (Theorem 2.3)
For #10-12, identify the property that justifies each statement.

10. \( \angle A \cong \angle A \)
   
   Reflexive          Symmetric          Transitive

11. If \( AB = CD \) and \( CD = EF \), then \( AB = EF \).
   
   Reflexive          Symmetric          Transitive

12. If \( \overline{ST} \cong \overline{MN} \), then \( \overline{MN} \cong \overline{ST} \).
   
   Reflexive          Symmetric          Transitive

13. Find the value of \( x \) and \( y \).

   \[
   x = \_\_\_\_\_\_\_\_
   
   y = \_\_\_\_\_\_\_
   \]

14. Find the measure of the missing angles.

   \[
   m\angle 2 = \_\_\_\_\_\_\_
   
   m\angle 3 = \_\_\_\_\_\_\_
   
   m\angle 4 = \_\_\_\_\_\_\_
   
   m\angle 6 = \_\_\_\_\_\_\_
   \]

15. Find the value of \( x \) and \( y \).

   \[
   x = \_\_\_\_\_\_\_
   
   y = \_\_\_\_\_\_\_
   \]
16. Write a proof for the following information. (4 points)

Given: \( m\angle 1 + m\angle 2 = 90^\circ \)
\( m\angle 3 + m\angle 4 = 90^\circ \)

Prove: \( m\angle 1 = m\angle 4 \)