Name_____ Period_____ Date_____

Chapter 2 Review

Name the property of equality or congruence that justifies each statement.

1. If $2x = 3$, then $x = \frac{3}{2}$.

2. If $\overline{PO} \cong \overline{WE}$ and $\overline{WE} \cong \overline{QR}$, then $\overline{PO} \cong \overline{QR}$.

3. $\overline{TJ} \cong \overline{TJ}$

4. If XY – AB = WZ – AB, then XY = WZ.

5. If AB = WV, then 4(AB) = 4(WV).

6. If $m\angle 1 + m\angle 2 = 90$, and $m\angle 2 = m\angle 3$, then $m\angle 1 + m\angle 3 = 90$.

7. If $GH = WX$, then $\overline{GH} \cong \overline{WX}$.

8. If $RT = QA$, then $QA = RT$.

Write the following statement as a conditional statement. Then write the converse, inverse, and contrapositive. Determine if each statement is true or false. If false, give a counterexample.

9. Rectangles have four right angles.

Conditional: _____

True / False **Counterexample:** _____

Converse: _____

True / False **Counterexample:** _____

Inverse: _____

True / False **Counterexample:** _____

Contrapositive: _____

True / False **Counterexample:** _____

10. Can the statement in problem 9 be written as a biconditional? Explain.

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

11. If it is windy outside, you can fly your new kite. It is windy outside.

$p \rightarrow q$
p
$\therefore q$

12. If you lose your book, then you must pay a fine. You must pay a fine.

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

13. If a triangle has three congruent angles, then it is equilateral. If a triangle is equilateral, then it has three congruent sides.

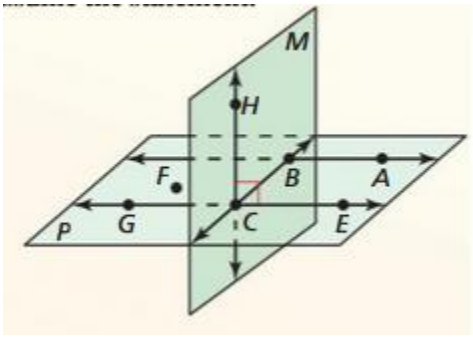
$p \rightarrow q$
$q \rightarrow r$
$\therefore p \rightarrow r$

14. If tomorrow is Saturday, then yesterday was Thursday. If today is Friday, then yesterday was Thursday.

15. What is the difference between inductive and deductive reasoning?

16. Write an equation that requires the Distributive Property of Equality and the Addition Property of Equality to solve.

Use the diagram at the right to determine whether the following statements are true or false.



17. Points *A*, *B*, *C*, and *E* are coplanar.

18. $\overleftrightarrow{HC} \perp \overleftrightarrow{GE}$

19. Points *F*, *B*, and *G* are collinear.

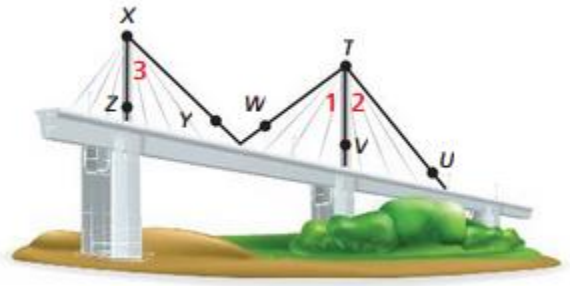
20. $\overleftrightarrow{AB}$ is parallel to $\overleftrightarrow{GE}$

21. Solve the following equation. Justify each step.

$$3(2x + 9) = 30$$

22. Given: $\angle 3$ and $\angle 2$ are complementary.
$m\angle 1 + m\angle 2 = 90$
Prove: $\angle 3 \cong \angle 1$

23. Given: $\angle 2 \cong \angle 3$, $\overrightarrow{TV}$ bisects $\angle UTW$
Prove: $\angle 1 \cong \angle 3$



24. Given: $\angle 2 \cong \angle 3$
Prove: $\angle 3 \cong \angle 6$