

Name _____ Date _____ Period _____

Unit 14 Review Part 1: Geometric Reasoning

Part 1: Properties

For Exercises 1–12, write the letter of each property next to its definition.
The letters a , b , and c represent real numbers.

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| 1. If $a = b$, then $b = a$. _____ | A. Addition Property of Equality |
| 2. If $a = b$, then $ac = bc$. _____ | B. Subtraction Property of Equality |
| 3. $\overline{AB} \cong \overline{AB}$ _____ | C. Multiplication Property of Equality |
| 4. $a = a$ _____ | D. Division Property of Equality |
| 5. If $a = b$, then $a + c = b + c$. _____ | E. Reflexive Property of Equality |
| 6. $a(b + c) = ab + ac$ _____ | F. Symmetric Property of Equality |
| 7. If $a = b$ and $b = c$, then $a = c$. _____ | G. Transitive Property of Equality |
| 8. If $\angle P \cong \angle Q$, then
$\angle Q \cong \angle P$. _____ | H. Substitution Property of Equality |
| 9. If $\angle A \cong \angle B$ and $\angle B \cong \angle C$,
then $\angle A \cong \angle C$. _____ | I. Distributive Property |
| 10. If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$. _____ | J. Reflexive Property of Congruence |
| 11. If $a = b$, then b can be substituted for a
in any expression. _____ | K. Symmetric Property of
Congruence |
| 12. If $a = b$, then $a - c = b - c$. _____ | L. Transitive Property of Congruence |

Part 2: Conditional Statements

13. Write a conditional statement from the sentence "Parallel lines do not intersect."
Underline the hypothesis once and the conclusion twice.

Conditional: _____

Determine if each conditional is true. If false, give a counterexample.

14. If two angles are adjacent, then they have a common ray. True or False

Counterexample: _____

15. If it is a weekday, then it is Monday. True or False

Counterexample: _____

Write the converse, inverse, and contrapositive of the given conditional statement in problems 16-18. Find the truth value of each.

16. "If $m\angle 1 = 35^\circ$, then $\angle 1$ is acute."

Converse: _____ T or F

Inverse: _____ T or F

Contrapositive: _____ T or F

17. "If $\angle X$ is a right angle, then $m\angle X = 90^\circ$."

Converse: _____ T or F

Inverse: _____ T or F

Contrapositive: _____ T or F

18. "If x is a whole number, then $x = 2$."

Converse: _____ T or F

Inverse: _____ T or F

Contrapositive: _____ T or F

Part 3: Multiple Choice

_____ **19. Which is the contrapositive of the statement
"If today is Monday, then tomorrow is Tuesday"?**

- A. If tomorrow is not Tuesday, then today is not Monday.
- B. If tomorrow is Tuesday, then today is Monday.
- C. Tomorrow is Tuesday if today is Monday.
- D. If today is not Monday, then tomorrow is not Tuesday.

_____20. Which statement is the converse of “ If I am late, then I run. ” ?

- A. If I do not run, then I am not late.
- B. If I am not late, then I run.
- C. If I am not late, then I do not run.
- D. If I run, then I am late.

_____21. The following are true statements:

- **If the sun shines, I will play tennis.**
- **If I play tennis, I will not study math.**
- **I studied math.**

Which statement must also be true?

- A. I didn't study math.
- B. The sun didn't shine
- C. The sun did shine.
- D. I played tennis