

Name _____ Date _____ Period _____

Homework Deductive Reasoning***Underline the hypothesis, and circle the conclusion of each conditional statement.***

1. If you eat breakfast, then you will feel better at school.
2. If two lines are perpendicular, then they form right angles.
3. If two angles are supplementary, then their sum is 180° .
4. If a nonzero number has exactly two factors, then the number is prime.

Write each statement in if-then form.

5. All students at Hermitage take an English class.
6. All right angles measure 90° .
7. Every dog has four legs.
8. All vertical angles are congruent.
9. All cats chase mice.

Write the converse, inverse, and contrapositive of each conditional statement.

10. If it is Saturday, then school is closed.

Converse: _____.

Inverse: _____.

Contrapositive: _____.

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11. If two angles are complementary, then they total 90° .

Converse: _____.

Inverse: _____.

Contrapositive: _____.

12. If a line bisects a segment, then the segment is divided into two congruent parts.

Converse: _____.

Inverse: _____.

Contrapositive: _____.

13. If it rains, then I will not go.

Converse: _____.

Inverse: _____.

Contrapositive: _____.

14. If two angles form a linear pair, then they are supplementary.

Converse: _____.

Inverse: _____.

Contrapositive: _____.

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Let p represent “Daniel is angry”, and let q represent “Daniel is not having fun”.

Translate the following into symbolic form.

15. Daniel is not angry. _____

16. Daniel is angry and Daniel is not having fun. _____

17. Daniel is not angry or Daniel is not having fun. _____

Translate the following from symbolic form to written form.

18. $p \wedge \sim q$
 _____.

19. $\sim q \vee p$
 _____.

Write the converse of each of the following conditional statements, and then write the biconditional.

20. If two angles are adjacent, then they share a common ray.
 converse: _____.

biconditional: _____.

21. If M is the midpoint of \overline{AB} , then M is between A and B and $AM = MB$.
 converse: _____.

biconditional: _____.