

## Homework 2-1 Conditional Statements

***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  $180^\circ$ .
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  $90^\circ$ .
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  $90^\circ$ .

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: \_\_\_\_\_.