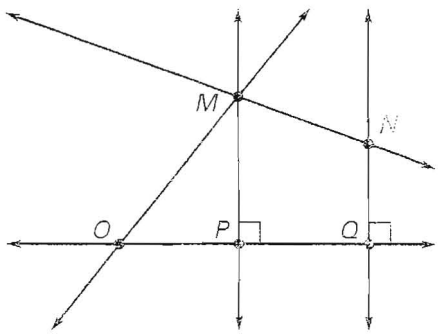
LESSON 2.2

NAME _____ DATE _____

Practice B

For use with pages 79–85

Use the diagram to determine whether the statement is *true* or *false*.



1. Points O, P, and Q are collinear.
2. $\angle MPO$ and $\angle NQP$ are supplementary.
3. Points M, P, and O lie in the same plane.
4. $\overleftrightarrow{MP}$ is perpendicular to $\overleftrightarrow{NQ}$.
5. $\overleftrightarrow{NQ}$ is perpendicular to $\overleftrightarrow{OQ}$.
6. $\angle MPO$ and $\angle MPQ$ are complementary.
7. Point Q is between point O and point P.

Rewrite the biconditional statement as a conditional statement and its converse.

8. $x = 4$ if and only if $x^2 = 16$.
9. Point Y lies between points X and Z if and only if $XY + YZ = XZ$.
10. The car will run if and only if there is gas in the tank.
11. Two angles are congruent if and only if they have the same measure.
12. An angle is a right angle if and only if it measures 90°.

Write the converse of each true statement. If the converse is also true, combine the statements to write a true biconditional statement.

13. If you are 15 years old, then you are a teenager.
14. If point C is on $\overrightarrow{BA}$, then point C is on $\overleftrightarrow{BA}$.
15. If two angles are complementary, then the sum of their measures is 90°.
16. If point C is between points A and B, then $\overrightarrow{CA}$ and $\overrightarrow{CB}$ are opposite rays.
17. If two angles form a linear pair, then they are adjacent.

LESSON 2.3

NAME _____ DATE _____

Practice B

For use with pages 87–95

Using p and q below, write the symbolic statement in words.

p: The value of x is 4. q: $3x + 2 = 14$

1. $\sim p$
2. $\sim q$
3. $q \rightarrow p$
4. $\sim q \rightarrow \sim p$
5. $p \rightarrow q$
6. $\sim p \rightarrow \sim q$

Determine if statement (3) follows from statements (1) and (2) by the Law of Detachment or the Law of Syllogism. If it does, state which law was used. If it does not, write invalid.

7. (1) If an angle measures more than 90°, then it is not acute.
   (2) $m\angle ABC = 120°$
   (3) $\angle ABC$ is not acute.
8. (1) All 45° angles are congruent.
   (2) $\angle A \cong \angle B$
   (3) $\angle A$ and $\angle B$ are 45° angles.
9. (1) If you order the apple pie, then it will be served with ice cream.
   (2) Matthew ordered the apple pie.
   (3) Matthew was served ice cream.
10. (1) If you wear the school colors, then you have school spirit.
    (2) If you have school spirit, then the team feels great.
    (3) If you wear the school colors, then the team will feel great.
11. (1) If you eat too much turkey, then you will get sick.
    (2) Kinsley got sick.
    (3) Kinsley ate too much turkey.
12. (1) If $\angle 2$ is acute, then $\angle 3$ is obtuse.
    (2) If $\angle 3$ is obtuse, then $\angle 4$ is acute.
    (3) If $\angle 2$ is acute, then $\angle 4$ is acute.

In Exercises 13–18, assume the following statements are true.

- If Susan screams, then the dog will run away.
- If the dog licks Susan, then Susan will scream.
- If Carl tells the dog to "kiss," then the dog will lick Susan.
- Carl tells the dog to "kiss."

13. Write the contrapositive of the third statement.
14. Write the inverse of the second statement.
15. Write the converse of the first statement.
16. Write the premises in an order which makes a valid argument.
17. Did the dog lick Susan? Explain.
18. Did the dog run away? Explain.