

LESSON
2.2

Practice

For use with pages 79–85

$P \rightarrow Q$

Rewrite the conditional statement in if-then form.

1. It is time for dinner ^Q if it is 6 P.M. ^P

If it is 6 p.m., then it is time for dinner.

2. There are 12 eggs if the carton is full.

If the carton is full, then there are 12 eggs.

3. An obtuse angle is an angle that measures more than 90° and less than 180° .

If an angle is obtuse, then it measures more than 90° and less than 180° .

4. The car runs when there is gas in the tank.

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

5. If you like hockey, then you go to the hockey game.

6. If x is odd ^P, then $3x$ is odd ^Q, $P \rightarrow Q$

$Q \rightarrow P$ If $3x$ is odd, then x is odd.

$\sim P \rightarrow \sim Q$ If x is not odd, then $3x$ is not odd.

$\sim Q \rightarrow \sim P$ If $3x$ is not odd, then x is not odd.

Decide whether the statement is true or false. If false, provide a counterexample.

7. The equation $4x - 3 = 12 + 2x$ has exactly one solution. True

$$\begin{array}{r} 4x - 3 = 12 + 2x \\ -2x + 3 + 3 - 2x \\ \hline 2x = 15 \\ x = 7.5 \end{array}$$

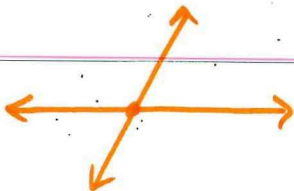
8. If $x^2 = 36$, then x must equal 18 or -18 . False

$$\sqrt{x^2} = \sqrt{36} \quad x = \pm 6$$

9. If $m\angle A = 122^\circ$, then the measure of the supplement of $\angle A$ is 58° . True

$$122 + 58 = 180^\circ \checkmark$$

10. Two lines intersect in at most one point. True



LESSON 2.2 Practice *continued*
For use with pages 79-85

Write the converse of each true statement. If the converse is also true, combine the statements to write a true biconditional statement. $P \leftrightarrow Q$

11. If an angle measures 30° , then it is acute.

if an angle is acute, then it measures 30° . *False*

12. If two angles are supplementary, then the sum of their measures is 180° .

if two angles sum is 180° , then they are supplementary. *True*
Two angles are supplementary if and only if the sum of their measures is 180° .

13. If two circles have the same diameter, then they have the same circumference.

14. If an animal is a panther, then it lives in the forest.

Rewrite the biconditional statement as a conditional statement and its converse. $Q \rightarrow P$

15. Two lines are perpendicular if and only if they intersect to form right angles.

* look at 2.2 notes (definition of \perp)

16. A point is a midpoint of a segment if and only if it divides the segment into two congruent segments.

$P \rightarrow Q$ If a point is a mp of a segment, then it divides the segment into two \cong segments.
 $Q \rightarrow P$ If a point divides the segment into two \cong segments, then it is a mp.

Decide whether the statement is a valid definition.

17. If a number is divisible by 2 and 3, then it is divisible by 6.

valid

18. If two angles have the same measure, then they are congruent.

valid

19. If two angles are not adjacent, then they are vertical angles.

invalid

