

Name _____

Date _____

LESSON 2.2

Practice C

For use with pages 79-85

Rewrite the conditional statement in if-then form.

1. A car with leaking antifreeze has a problem.
2. Don't say anything at all when you don't have something nice to say.
3. You can't teach an old dog new tricks.
4. A vein is a blood vessel that carries blood toward the heart.

For the given statement, write the if-then form, the converse, the inverse, and the contrapositive and indicate whether each statement is *true* or *false*.

5. A circle with a radius of r has a circumference of $2\pi r$.

6. Any two adjacent angles share a common side.

Rewrite the definition as a biconditional statement.

7. A conditional statement is a logical statement that has two parts, a hypothesis and a conclusion.
8. A conjecture is an unproven statement that is based on observations.
9. A counterexample is a specific case for which a given conjecture is false.
10. A polygon is a closed plane figure that is formed by three or more sides, with each side intersecting exactly two other sides, one at each endpoint, so that no two sides with a common endpoint are collinear.

Decide whether the statement is a valid definition.

11. If a figure is an n -gon, then the figure is a polygon with n sides.

12. If a polygon is convex, has five sides, and is both equilateral and equiangular, then the polygon is a regular polygon.

13. If a polygon is not convex, then it is a concave polygon.

In Exercises 24-28, use the following information.

Cyclones Cyclones are areas of rotating air that can be associated with many types of severe weather. Tornadoes are sometimes considered to be cyclones that occur over land. Tropical cyclones are cyclones that form over tropical ocean waters. A weak tropical cyclone with winds of less than 38 miles per hour is called a tropical depression. A tropical depression turns into a tropical storm if its winds increase to 39 miles per hour or faster. The most severe type of tropical cyclone occurs if the wind speeds increase to greater than 74 miles per hour. This type of storm has many different names, depending on where it forms. Some of the names used in different locations are: *typhoon* over much of the Pacific Ocean, *willy-nilly* near Australia, and hurricane over the Atlantic Ocean.

Tell whether the statement is a valid definition of a hurricane. If not, explain why.

14. If a tropical cyclone develops in the Atlantic Ocean, then the storm is called a hurricane.

15. If a tropical cyclone has winds in excess of 74 miles per hour, then the storm is called a hurricane.

16. If a storm occurs in the tropics over the Atlantic Ocean and the storm has winds of over 74 miles per hour, then the storm is a hurricane.

17. If a cyclone with winds of over 74 miles per hour forms in the Atlantic Ocean, then the storm is a hurricane.

18. If a tropical cyclone is formed over the Atlantic Ocean and develops wind speeds of over 74 miles per hour, then the storm is classified as a hurricane.