

## Practice 2-2

### Biconditionals and Definitions

Each conditional statement is true. Write each converse. If the converse is true, combine the statements and write them as a biconditional. If the converse is false, give a counterexample.

- If two angles have the same measure, then they are congruent.
- If  $2x - 5 = 11$ , then  $x = 8$ .
- If  $n = 17$ , then  $|n| = 17$ .
- If a figure has eight sides, then it is an octagon.

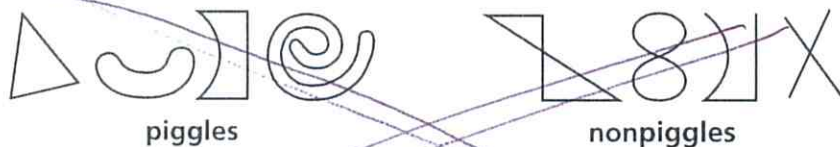
Write the two conditional statements that make up each biconditional. (You should write 2 if, then statements.)

- A whole number is a multiple of 5 if and only if its last digit is either a 0 or a 5.
- Two lines are perpendicular if and only if they intersect to form four right angles.
- You live in Texas if and only if you live in the largest state in the contiguous United States.

Use logic to decide if each is a “good” definition. Analyze  $p \rightarrow q$  &  $q \rightarrow p$ .

- An automobile is a motorized vehicle with four wheels.
- A circle is a shape that is round.
- The median of a set of numbers is larger than the smallest number in the set and smaller than the largest number in the set.
- Cricket is a game played on a large field with a ball and a bat.
- A rectangle is a very pleasing shape with smooth sides and very rigid corners.

Some figures that are *piggles* are shown below, as are some *nonpiggles*.



Tell whether each of the following is a *piggle*.

