

**Write the converse, inverse, and contrapositive for each conditional statement. Identify each statement as *true* or *false*.**

1. If you like swimming, then you like to be at the beach.

Converse: \_\_\_\_\_

Inverse: \_\_\_\_\_

Contrapositive: \_\_\_\_\_

2. If  $4x$  is even, then  $x$  is odd.

Converse: \_\_\_\_\_

Inverse: \_\_\_\_\_

Contrapositive: \_\_\_\_\_

3. If  $m\angle P = 109^\circ$ , then  $\angle P$  is obtuse.

Converse: \_\_\_\_\_

Inverse: \_\_\_\_\_

Contrapositive: \_\_\_\_\_

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

4. The equation  $-3x - 10 = 5 + 2x$  has exactly one solution.

5. If  $x > 0$ , then  $x^2 > x$ .

6. For any real numbers  $a$  and  $b$ ,  $|a + b| = |a| + |b|$ .

7. If you visited the White House, then you've been to Washington, DC.

8. Two collinear rays intersect.

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

9. An angle is acute if and only if it measures less than  $90^\circ$ .

Conditional statement: \_\_\_\_\_

Converse: \_\_\_\_\_

10. I eat pizza if and only if it is Friday night.

Conditional statement: \_\_\_\_\_

Converse: \_\_\_\_\_

**For 11-12, write the converse of each true statement. If the converse is also true, write the biconditional statement. If the converse is false, give a counterexample.**

11. If you live in Miami, then you live in Florida.

Converse: \_\_\_\_\_

Biconditional or counterexample: \_\_\_\_\_

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

Converse: \_\_\_\_\_

Biconditional or counterexample: \_\_\_\_\_

**A little fun! Let's put your logic skills to the test...**

13. The Bronx Zoo has a green lizard, a red crocodile, and a purple monkey. They are the only animals of their kind in existence. One violently windy Saturday, their name tags blew off, and their keeper's journal was torn to shreds. Inasmuch as they were to appear on television at 7:30 Sunday morning, the night watchman had to replace their name tags. He managed to piece together the following information from the mangled journal.

- Wendy cannot get along with the lizard.
- Katie playfully took a bite out of the monkey's ear one month ago.
- Wendy never casts a red reflection in the mirror.
- Jodi has the personality of a crocodile, but she isn't one.

Match the animals with their names.

Wendy is the \_\_\_\_\_.

Katie is the \_\_\_\_\_.

Jodi is the \_\_\_\_\_.