Match the correct term to complete each sentence.

1. A conditional statement is a statement that can be written in the form “_______ p, _______ q.”
   - A. hypothesis
   - B. converse
   - C. conclusion
   - D. if; then
   - E. inverse
   - F. negating; exchanging

2. The _______ is the part p of a conditional statement following the word if.
3. The _______ is the part q of a conditional statement following the word then.
4. The _______ is the statement formed by negating the hypothesis and the conclusion.
5. The _______ is the statement formed by exchanging the hypothesis and the conclusion.
6. The contrapositive is the statement formed by both _______ and _______ the hypothesis and the conclusion.

Use the following conditional statement for Exercises 7–12.
If it is a bicycle, then it has two wheels.

7. Give the hypothesis of the conditional statement.
   ________________
8. Give the conclusion of the conditional statement.
   ________________
9. “If it has two wheels, then it is a bicycle.” Tell whether this is the converse, the inverse, or the contrapositive of the given conditional.
   ________________
10. “If it does not have two wheels, then it is not a bicycle.” Tell whether this is the converse, the inverse, or the contrapositive of the given conditional.
    ________________
11. “If it is not a bicycle, then it does not have two wheels.” Tell whether this is the converse, the inverse, or the contrapositive of the given conditional.
    ________________
12. Tell which of the original statement, the converse, the inverse, and the contrapositive are true statements. (Hint: Can you think of another two-wheeled vehicle?)

Use the following statements for Exercises 13 and 14.
Ella says, “When it rains, I go indoors.” Casey replies, “I play in the rain if there is no lightning.”

13. Rewrite Ella’s statement as an “if, then” statement.

14. Rewrite Casey’s statement as an “if, then” statement.
### Practice A
#### Conditional Statements
Match the correct term to complete each sentence.

1. A conditional statement is a statement that can be written in the form __________________________.
   - A. hypothesis
   - B. converse
   - C. conclusion

2. The __________ is the part of a conditional statement following the word if.
   - A. hypothesis
   - B. converse
   - C. conclusion

3. The __________ is the part of a conditional statement following the word then.
   - A. hypothesis
   - B. converse
   - C. conclusion

4. The __________ is the statement formed by negating the hypothesis and the conclusion.
   - A. inverse
   - B. converse
   - C. contrapositive

5. The __________ is the statement formed by exchanging the hypothesis and the conclusion.
   - A. inverse
   - B. converse
   - C. contrapositive

6. The __________ is the statement formed by both F and F, the hypothesis and the conclusion.
   - A. inverse
   - B. converse
   - C. contrapositive

Use the following conditional statement for Exercises 7–12.

**Conditional:** If it is a bicycle, then it has two wheels.

7. Give the hypothesis of the conditional statement.
   - **Hypothesis:** It has two wheels.

8. Give the conclusion of the conditional statement.
   - **Conclusion:** It is a bicycle.

9. If it has two wheels, then it is a bicycle. Tell whether this is the converse, the inverse, or the contrapositive of the given conditional.
   - **Converse:** If it is a bicycle, then it has two wheels.
   - **Inverse:** If it does not have two wheels, then it is not a bicycle.
   - **Contrapositive:** If it is not a bicycle, then it does not have two wheels.

10. If it does not have two wheels, then it is not a bicycle. Tell whether this is the converse, the inverse, or the contrapositive of the given conditional.
    - **Converse:** If it is not a bicycle, then it does not have two wheels.
    - **Inverse:** If it has two wheels, then it is not a bicycle.
    - **Contrapositive:** If it has two wheels, then it is a bicycle.

11. If it is a bicycle, then it does not have two wheels. Tell whether this is the converse, the inverse, or the contrapositive of the given conditional.
    - **Converse:** If it is not a bicycle, then it does not have two wheels.
    - **Inverse:** If it has two wheels, then it is a bicycle.
    - **Contrapositive:** If it does not have two wheels, then it is not a bicycle.

12. If there are two wheels, then it is a bicycle. Tell whether this is the converse, the inverse, or the contrapositive of the given conditional.
    - **Converse:** If it is a bicycle, then it has two wheels.
    - **Inverse:** If it is not a bicycle, then it does not have two wheels.
    - **Contrapositive:** If it does not have two wheels, then it is not a bicycle.

### Practice C
#### Conditional Statements
Rewrite each sentence as a conditional in Exercises 1–3.

1. No man is an island.
   - **If man, then island.**

2. Nothing happens unless first a dream.
   - **If nothing, then dream.**

3. If it rains, then I go indoors.
   - **If rain, then indoors.**

4. If a number is composite, then it is a whole number with three or more factors.
   - **If a number, then composite.**

5. If the stars are aligned, then it is night.
   - **If stars, then night.**

6. If it is not a bicycle, then it does not have two wheels.
   - **If not bicycle, then not two wheels.**

7. If it has two wheels, then it is a bicycle.
   - **If two wheels, then bicycle.**

8. If you can see the stars, then it is night.
   - **If stars, then night.**

9. If you see the stars, then it is night.
   - **If stars, then night.**

10. If a number is composite, then it is a whole number with three or more factors.
    - **If a number, then composite.**

11. If two points are noncollinear, then they determine a plane.
    - **If points, then plane.**

12. If it rains, then I go indoors.
    - **If rain, then indoors.**

### Reteach
#### Conditional Statements
A conditional statement is a statement that can be written as an if-then statement, “If p, then q.”

**Example:** If the hypothesis comes after the word if, then the conclusion comes after the word then.

**If you buy this cell phone, then you will receive 10 free ringtones downloads.**

*Sometimes it is necessary to rewrite a conditional statement so that it is in if-then form.*

**Condition:** A person who practices putting will improve her golf game.

**If-Then Form:** If a person practices putting, then she will improve her golf game.

A conditional statement has a false truth value only if the hypothesis (p) is true and the conclusion (q) is false.

**For each conditional, underline the hypothesis and double-underline the conclusion.**

1. If a number is an even number, then x is divisible by 2.
   - Hypothesis: x is an even number.
   - Conclusion: x is divisible by 2.

2. The circumference of a circle is 5π inches, if the diameter of the circle is 5 inches.
   - Hypothesis: The circumference of a circle is 5π inches.
   - Conclusion: The diameter of the circle is 5 inches.

3. If a line containing the points J, K, and L is in plane P, then J, K, and L are coplanar.
   - Hypothesis: If a line contains J, K, and L.
   - Conclusion: J, K, and L are coplanar.

For Exercises 4–6, write a conditional statement from each given statement.

4. Congruent segments have equal measures.
   - If segments are congruent, then they have equal measures.

5. On Tuesday, play practice is at 6:00.
   - If it is Tuesday, then play practice is at 6:00.

6. If two angles form a linear pair, then they are adjacent angles.
   - If two angles are supplementary, then they form a linear pair.
   - False; two supplementary angles need not be adjacent.