Language

Implications are not always stated exactly in the form, “If $P$ is true, then $Q$ is true.”

The statements given below use alternative language to assert a conditional statement. For each one, determine the hypothesis and conclusion. Is the statement equivalent to the following statement?

If a quadrilateral is a square, then it is a rectangle.

1. A quadrilateral is a square if it is a rectangle.
   - Yes
   - No

2. A quadrilateral is a rectangle whenever it is a square.
   - Yes
   - No

3. A quadrilateral is a square provided that it is a rectangle.
   - Yes
   - No

4. For a quadrilateral to be rectangle, it is sufficient that it be a square.
   - Yes
   - No

5. A quadrilateral being a square is a sufficient condition for it being a rectangle.
   - Yes
   - No

6. It is necessary that a quadrilateral be a rectangle for it to be a square.
   - Yes
   - No

7. For a quadrilateral to be a rectangle, it is necessary that it be a square.
   - Yes
   - No

8. A quadrilateral is a rectangle only if it is a square.
   - Yes
   - No

9. A quadrilateral is not a square whenever it is not a rectangle.
   - Yes
   - No

For any true conditional statement, the conclusion must hold when the hypothesis is true.