Lesson 2.6.1: If-Then Statements

If-then statement is composed of two clauses: the if-clause (p) and the then-clause (q) and is in the form, "If p then q."
Conditional Statement: formed by joining two statements p (hypothesis) and q (conclusion) using the words *if* and *then*
Simple Implication: a simple flow of reasoning from the if-clause to the then-clause

Truth Table of Simple Implication

p	q	$p \to q$
T	T	T
T	F	F
F	T	T
F	F	T

Practice Exercises 2.6.1

A. Convert each statement to if-then form, then underline the hypothesis and double underline the conclusion.

1. Good citizens obey rules and regulations.
2. The sum of the measures of complementary angles is 90°.
3. Opposite sides of a rectangle are parallel.
4. A quadrilateral has four sides.
5. A triangle is a polygon with three sides.

B. Given the hypothesis p and the conclusion q, determine the conditional that $p \to q$ represents, then determine the truth value of $p \to q$.

1. p: 8 is an odd number, q: 9 is composite.
2. p: Circle is a polygon, q: 1 is a prime number.
3. p: A right angle measures 90°, q: Parallel lines intersect.
4. p: Perpendicular lines intersect, q: 5 is a prime number.
5. p: 2 is a prime number, q: 11 is composite.

Activity 2.6.1

A. Convert each statement to if-then form, then underline the hypothesis and double underline the conclusion.

1. Parallel lines do not intersect.
2. Right angles are congruent.
3. Even numbers are divisible by two.

B. Given the hypothesis p and the conclusion q, determine the conditional that $p \to q$ represents, then determine the truth value of $p \to q$.

1. p: 7 is an even number, q: 10 is composite.
2. p: Triangle is a polygon, q: 3 is a prime number.
3. p: A straight angle measures 180°, q: 5 is an odd number.

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