Section 2-2: Conditional Statements (Day 2)
Conditional

- A statement that can be written in *If-then* form
- symbol: If $p \rightarrow$, then $q$
Converse

• The statement formed by *exchanging* the *hypothesis* and *conclusion* of the conditional statement

• symbol: $q \rightarrow p$
Inverse

- The statement formed by negating the hypothesis and conclusion of the conditional statement

- symbol: $\sim p \rightarrow \sim q$
Contrapositive

- The statement formed by exchanging **AND** negating the **hypothesis** and **conclusion** of the conditional statement

- Symbol: $\sim q \rightarrow \sim p$
If it rains, then I will get wet.

1. If I don’t get wet, then it’s not raining. ____

2. If I get wet, then it’s raining. ____

3. If it’s not raining, then I don’t get wet. ____

A) converse B) inverse C) contrapositive
Truth Value

Determine the truth of each statement. If the statement is false, provide a *counterexample*.

1. If I don’t get wet, then it’s not raining.

2. If I get wet, then it’s raining.

3. If it’s not raining, then I don’t get wet.
Deductive Reasoning

Using logic to **draw conclusions** based on **facts, definitions, and properties**.
Law of Syllogism

If \( p \rightarrow q \) and \( q \rightarrow r \) are true statements, then \( p \rightarrow r \) is a true statement.
Section 2-4: Biconditional Statements
Biconditional Statements

• can be written in the form “p if and only if q”, which means “if p, then q” and “if q, then p”

• are reversible

• contain the *conditional* AND *converse* statements

• “if and only if” shorthand: *iff*