

Geometry

Chapter 2
Section 2-4

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Vocabulary

Deductive
Reasoning

Using logic and reason to form conclusions based on given statements or facts

Compound
Statement

Logical statement combining two or more statements

Compound Statements

Take note

Key Concepts Compound Statements

Compound Statement	How to Form It	Example	Symbols
conjunction	Connect two or more statements with <i>and</i> .	You will eat a sandwich and you will drink juice.	$s \wedge j$ You say "s and j."
disjunction	Connect two or more statements with <i>or</i> .	You will eat a sandwich or you will drink juice.	$s \vee j$ You say "s or j."

Conjunctions and Disjunctions

r: The Cardinals win

s: The Braves win

t: The Cardinals make the playoffs

$r \vee s$

The Cardinals win or the
Braves win

$r \wedge \sim s$

The Cardinals win and the
Braves do not win

$r \wedge s$

The Cardinals win and
the Braves win

$(r \wedge \sim s) \rightarrow t$

If the Cardinals win and the
Braves do not win then the
Cardinals will make the playoffs

Identifying Parts of a Compound Statement

Jacob

"If God will be with me and will keep me on this journey that I take, and will give me food to eat and garments to wear, and I return to my father's house in safety, then the Lord will be my God.

--Genesis 28: 20-21

$$((p \wedge q) \wedge (r \wedge s) \wedge t) \rightarrow u$$

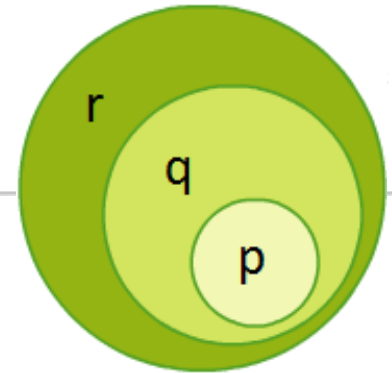
Law of Syllogism

take note

Property Law of Syllogism

Symbols

If $p \rightarrow q$ is true
and $q \rightarrow r$ is true,
then $p \rightarrow r$ is true.



Law of Detachment

Take note

Property Law of Detachment

Law

If the **hypothesis** of a true conditional is true, then the **conclusion** is true.

Symbols

If $p \rightarrow q$ is true
and p is true,
then q is true.

If you organize a school dance, then you will get 200 house points.
Gonzaga is organizing a school dance.

If someone lives in Columbia, they live in Boone County. Mr. Stratman lives in Columbia.

If something is a whole number, then it is an integer. X is an integer.

Truth Tables

p	q	$p \vee q$	$p \wedge q$	$p \rightarrow q$
T	T	T	T	T
T	F	T	F	F
F	T	T	F	T
F	F	F	F	T

More Truth Tables

p	q	r	$p \vee q$	$p \wedge q$	$(p \vee q) \wedge r$	$(p \vee q) \rightarrow r$	$(p \wedge q) \rightarrow r$
T	T	T					
T	T	F	T	T		F	F
T	F	T	T	F		T	
T	F	F	T	F	F		T
F	T	T	T	F			T
F	T	F	T	F		F	T
F	F	T	F	F		T	T
F	F	F	F	F	F		

Homework

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