

2-3 Deductive Reasoning



Please read Pages 94-96 and complete the Quick Checks 1-5.

Today's Vocabulary:

- 😊 **Deductive Reasoning**
- 😊 **Law of Detachment**
- 😊 **Law of Syllogism**

Real-World Connections:

A gardener knows that if it rains, the garden will be watered. It is raining. What conclusion can he make?

The garden will be watered.

Using the Law of Detachment:

Law of Detachment:

If a conditional is true and its hypothesis is true, then its conclusion is true.

In symbolic form:

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

For the given statements, what can you conclude?

Given: If $\angle A$ is acute, $m \angle A < 90$.

$\angle A$ is acute. $\angle A$ is 90° .

Real-World Connection:

Does the following argument illustrate the Law of Detachment?

Given: If you make a field goal in basketball, you score two points. Jenna scored two points in basketball.

You conclude: Jenna made a field goal.

No, could be free throws

Using the Law of Syllogism:

Law of Syllogism:

If $p \rightarrow q$ and $q \rightarrow r$ are true statements, then $p \rightarrow r$ is a true statement.

Use the Law of Syllogism to draw a conclusion from the following

statements: If a quadrilateral^P is a square, then it contains four⁹⁰ right angles. If a quadrilateral contains four⁹⁰ right angles, then it is a rectangle^r.

$P \rightarrow r$

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

Real-World Connection:

Using the Laws of Detachment and Syllogism to draw a possible conclusion.

If the circus is in town, then there are tents at the fairground. If there are tents at the fairground, then Paul is working as a night watchman.

The circus is in town.

Paul is working as a night watchman.

Assignment:

Pages 96-98: #'s 1-33 odds