

# Deductive Reasoning

Based on facts, definitions, and previous knowledge



Sep 15-10:34 AM

# Conditional Statements

Conditional Statements have two parts:

- 1)
- 2)

Typically written in "if-then" form



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Ex. 1. Identify the hypothesis and conclusion.

- a. If it is sunny, then I will go to the beach.
- b. I use an umbrella if it rains.



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Rewrite in if-then form.

- a. A number divisible by 9 is also divisible by 3.
- b. Jimmy is upset if he fails a test.
- c. Geometry students must have passed algebra 1.



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Provide a counterexample to show the conditional is false. (not a true/false question!)

a) If  $x^2 = 16$ , then  $x = 4$

- b) If you are a student in geometry, then you are a sophomore.



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A **converse** is formed by switching the hypothesis and conclusion of the conditional statement.

ex. If you see lightning, then you hear thunder.



**Converse:**



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Ex. Write the converse of the following conditional statement.

On Fridays, the staff at PHS wear orange and black.



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**Homework:**

1. What makes up a conditional statement?
2. What form is a conditional statement normally in?
3. Rewrite the following in if-then form.

**All students take physical science.**



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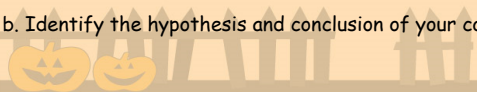
4. Identify the hypothesis and conclusion.
  - a. If it is October, then the trees turn colors.
  - b. Mrs. Krebsbach drinks coffee if she is tired.
5. Write the converse.  
If it is snowing, then William goes sledding.
6. Is the converse in #5 true or false? If false, provide a counterexample.



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**Create your own!!**

7. a. Create a conditional statement in if-then form.
- b. Write the converse. State if the converse is true/false.
8. Create a conditional statement not in if-then form.
- b. Identify the hypothesis and conclusion of your conditional.



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