

Objectives: You will be able to analyze statements in if-then form.

Conditional: A statement written in if - then form.

Example: If it is June 20th, then it is our last day of school.



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Two parts of a conditional:

1. **Hypothesis** - The part of the conditional that comes **after the if**, but before the **then**.
2. **Conclusion** - The part of the conditional that comes **after the then**.

*Note: The words **if** and **then** are **NEVER** part of the hypothesis or conclusion!!

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Example #1:

Underline the hypothesis and circle the conclusion in the follow conditionals.

1. If school is not in session, then it is the summer.



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2. If $x + 5 = 8$, then $x = 3$.

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Writing a statement in Conditional Form

Locate the **verb** in the sentence. Everything before the verb becomes part of the **hypothesis**. Everything from the verb onward becomes part of the **conclusion**. (It may be necessary to slightly alter the wording so that the conditional makes sense.)

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Example #2:

Change the following statements into conditionals.

1. All rectangles have 4 right angles.

If it's a rect. then it has 4 rt. <'s.

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2. People who are 16 or older can drive a car.

IF you are 16 or older, then you can drive a car.



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Converse: Formed by reversing the hypothesis and the conclusion.



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Example #3:

Write the converse of the following conditionals.

1. If it is Saturday then it is the weekend.

IF it's the weekend, then it is Sat.

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2. If a polygon is a quadrilateral, then it has four sides.

IF it has 4 sides, then the polygon is a quad.

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Negation: Gives the statement the opposite meaning by adding or taking away the word **not**.



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Example #4:

Write the negation of each statement.

1. The ball is red.

The ball is not red

2. It is not snowing.

It is snowing

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Inverse: Formed by negating the hypothesis and the conclusion.

Contrapositive: Formed by negating the hypothesis and conclusion and then reversing them.

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Conditional: If two lines are ~~parallel~~^{not}, then they ~~never~~^{do} intersect.

Flip + negate
Contrapositive: IF they intersect
then they are not parallel

T/F: true

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Example #5:

Write the inverse and contrapositive of the following conditional and determine if they are true or false.

Conditional: If two lines are parallel, then they never intersect.

Neg: if 2 lines are not parallel
then they do intersect

T/F: true

Equivalent Statements: When two statements are either both true or both false

> The conditional and the contrapositive always have the same truth value!!

> The converse and the inverse always have the same truth value!!

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