

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 20<sup>th</sup>, then it is our last day of school.



Apr 23-10:09 AM

**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!!

Apr 23-10:11 AM

**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



Apr 23-10:14 AM

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

Apr 10-4:07 PM

**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.)

Apr 23-10:17 AM

**Example #2:**

Change the following statements into conditionals.

1. All rectangles have 4 right angles.

*If the figure is a rect.  
Then they have 4 right angles.*

Apr 23-10:19 AM

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

If you are 16 or older,  
Then you can drive  
a car.



Apr 10-4:08 PM

**Converse:** Formed by reversing the hypothesis and the conclusion.



Apr 23-10:39 AM

**Example #3:**

Write the converse of the following conditionals.

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

If it is the weekend,  
then it is Sat.

Apr 23-10:46 AM

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

If a polygon has 4  
sides, then it is a quad.

Apr 10-4:11 PM

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



Apr 23-10:50 AM

**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

Oct 12-12:52 PM

**Inverse:** Formed by negating the hypothesis and the conclusion.

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

Oct 12-12:51 PM

**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~~<sup>not</sup>, then they ~~never~~<sup>intersect</sup>.

Inverse: IF 2 lines are not parallel, then they intersect.

T/F: true



Apr 23-10:52 AM

Conditional: If two lines are ~~parallel~~<sup>not</sup>, then they ~~never~~<sup>intersect</sup>.

Contrapositive: IF they intersect, then the 2 lines are not parallel

T/F: true



Apr 23-10:53 AM

**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!!

Apr 10-4:13 PM