# Conditional and Biconditional Statements

**Conditional Statements:**

Two parts:

Hypothesis -

Conclusion –

Usually written in "if-then" form $p \rightarrow q$ :

**Example 1:**

Rewrite the conditional statement in if-then form. Underline the hypothesis and circle the conclusion.

Water freezes at or below $32°F$

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**Counterexample** -

**Example 2:**
Decide if each statement is true or false. If false, provide a counterexample.

a. If a number is odd, then it is divisible by 3.

b. If a line and a plane intersect, then their intersection is a point.

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**Converse** -

**Inverse** -

**Contrapositive** -

**Example 3:**
Write the converse, inverse, and contrapositive of the conditional statement below. Then, decide if each statement is true or false.

**If it is Tuesday, then it is a weekday.**

*Converse*

*Inverse*

*Contrapositive*

**Biconditional Statements**

**Example 4:**
Write the biconditional statement below as a conditional and its converse. Then decide if each statement is true or false.

$x = 3$ if and only if $x^2 = 9$

*Conditional*

*Converse*