

**Conditional Statement:**

1. If it is noon in Georgia, then it is 9am in California.

Rewrite the following statements into if-then form

2. Two points are collinear if they lie on the same line.
3. All sharks have a boneless skeleton.

To prove true →

To prove false →

Ex. Find a counterexample for:

If  $x^2 = 16$ , then  $x = 4$ .

**Converse:**

Ex.

Statement: If you see lightning then you hear thunder.

Converse:

Perpendicular Lines: intersect to form a right angle.

\*Can be interpreted "forward" and "backward"

1.

2.

Note: Converse of first statement is still true!

**Biconditional statement:**

Ex. Three lines are coplanar if and only if they lie on the same plane.

Conditional Statement:

Converse:

True Biconditional Statement when:

1.

2.

False Biconditional Statement when:

Examples:

1. Determine if the following biconditional statement is true:

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

2. Write the converse of the statement below. If the converse is true, write the biconditional statement:

“If a line contains two points then the points are collinear.”