Biconditional Statements

Name _____

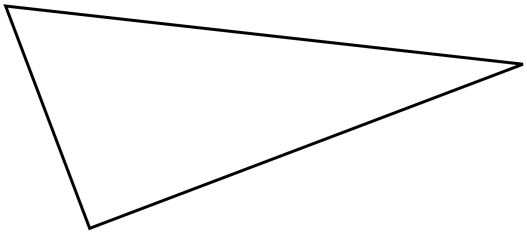
Date _____ Period _____

Conditional Statement

$p \rightarrow q$

If a figure is a triangle,
then the figure has three sides.

TRUE statement

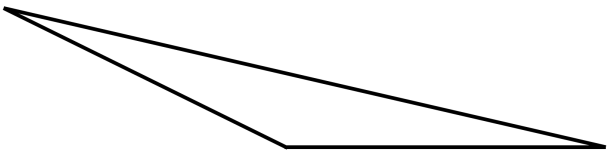


Converse

$q \rightarrow p$

If a figure has three sides,
then the figure is a triangle.

TRUE statement



Conditional Statement

$p \rightarrow q$

If a figure is a triangle,
then the figure has three sides.

TRUE statement

Converse

$q \rightarrow p$

If a figure has three sides,
then the figure is a triangle.

TRUE statement

If the Conditional Statement is TRUE and the Converse is also TRUE,
then the two statements can be combined into one Biconditional Statement.

A figure is a triangle if and only if the figure has three sides.

hypothesis $\leftrightarrow$ *conclusion*

$p \leftrightarrow q$

Conditional Statement

$p \rightarrow q$

If $\angle ABC \cong \angle XYZ$,
then $m\angle ABC = m\angle XYZ$.

Converse

$q \rightarrow p$

If $m\angle ABC = m\angle XYZ$,
then $\angle ABC \cong \angle XYZ$.

Conditional Statement

$p \rightarrow q$

If $\angle 1$ and $\angle 2$ are complementary angles,
then $m\angle 1 + m\angle 2 = 90°$.

Converse

$q \rightarrow p$

If $m\angle 1 + m\angle 2 = 90°$,
then $\angle 1$ and $\angle 2$ are complementary angles.

Determine if the following Biconditional Statement are TRUE or FALSE.

$\angle 1$ and $\angle 2$ are vertical angles if and only if $\angle 1 \cong \angle 2$.

Determine if the following Biconditional Statement are TRUE or FALSE.

Points *A*, *B*, and *C* lie on the same line if and only if Points *A*, *B*, and *C* are collinear.

Determine if the following Biconditional Statement are TRUE or FALSE.

$\angle 1$ and $\angle 2$ form a linear pair if and only if $\angle 1$ and $\angle 2$ are supplementary.

Biconditional Statement

A statement combining two statements (Conditional Statement and the Converse) with an "if and only if".

$$p \leftrightarrow q$$

Conditional Statement	Converse
$p \rightarrow q$	$q \rightarrow p$

If the Conditional Statement is TRUE and the Converse is TRUE, then the Biconditional Statement is TRUE.

If the Conditional Statement is FASLE or the Converse is FALSE, then the Biconditional Statement is FALSE.