

Section 2-1: Conditional Statements

Conditional

- A statement that can be written in *If-then* form
- symbol: If p , then q $p \longrightarrow q$
- *If I let go of the pencil then it will fall*

Converse

- The statement formed by *exchanging* the *hypothesis* and *conclusion* of the conditional statement
- symbol: $q \longrightarrow p$
- *if the pencil falls then I let go of it*

Inverse

- The statement formed by *negating* the *hypothesis* and *conclusion* of the conditional statement
- symbol: $\sim p \longrightarrow \sim q$
- *if I don't let go of the pencil then it won't fall*

Contrapositive

- The statement formed by *exchanging* AND *negating* the *hypothesis* and *conclusion* of the conditional statement
- symbol: $\sim q \longrightarrow \sim p$
- *If the pencil does not fall then I didn't let go of it*

*If I let go of the pencil then it
will fall.*

1. If the pencil doesn't fall then I did not let go of it. _____
2. If the pencil falls then I let go of it. _____
3. If I don't let go of the pencil then it will not fall. _____

A) converse

B) inverse

C) contrapositive

Truth Value

1. If Leo is late, he gets detention. _____**T**
2. If Leo is not late, he doesn't get detention _____**F**
3. If Leo gets detention, he was late _____**F**
4. If Leo doesn't get detention, he was not late. _____**T**

A) converse

B) inverse

C) contrapositive

Biconditional Statements

- can be written in the form “*p* if and only if *q*”, which means “if *p*, then *q*” and “if *q*, then *p*”
- are *reversible*
- contain the *conditional* AND *converse* statements
- “*if and only if*” shorthand: *iff*

Biconditional Statements

An angle is a right angle if and only if it measures 90 degrees

If an angle is a right angle, it measures 90 degrees

If an angle measures 90 degrees, it is a right angle