Lesson 2.6.2: Inverse Converse and Contrapositive Statements

What is an Inverse Statement?

- a statement formed by negating the hypothesis and conclusion of the original conditional statement
- symbolically written as $\sim p \to \sim q$
- "If not p, then not q".

What is a Converse Statement?

- a statement formed by interchanging the hypothesis and the conclusion
- in symbols, $q \to p$
- "If q, then p".

What is Contrapositive Statement?

- a statement formed by negating both the hypothesis and conclusion and also then interchanging these negations
- in symbols, $\sim q \to \sim p$
- "If not q, then not p."
- The contrapositive of a conditional statement always has the same truth value as the original statement.

Forms of Statements

Conditional	If p, then q.
Inverse	If not p, then not q.
Converse	If q, then p.
Contrapositive	If not q, then not p.

Practice Exercises 2.6.2

State the if-then form, converse, inverse, and contrapositive of the following statements.

1. Three non-collinear points determine a plane.
2. A rectangle has four right angles.
3. Perpendicular lines intersect.
4. If a number is an integer, then it is rational.
5. If two numbers are odd, then their product is odd.

Activity 2.6.2

State the if-then form, converse, inverse, and contrapositive of the following statements.

1. Two intersecting lines lie in one plane.
2. The sum of angles forming a linear pair is 180°.
3. Two congruent angles have the same measure.

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