

G.G.26: Conditional Statements: Identify and write the inverse, converse, and contrapositive of a given conditional statement and note the logical equivalences

- 1 A conditional statement is always logically equivalent to its
- 1) contrapositive
 - 2) converse
 - 3) conjunction
 - 4) inverse

- 2 Consider the relationship between the two statements below.

If $\sqrt{16+9} \neq 4+3$, then $5 \neq 4+3$

If $\sqrt{16+9} = 4+3$, then $5 = 4+3$

These statements are

- 1) inverses
 - 2) converses
 - 3) contrapositives
 - 4) biconditionals
- 3 Write a statement that is logically equivalent to the statement "If two sides of a triangle are congruent, the angles opposite those sides are congruent."
Identify the new statement as the converse, inverse, or contrapositive of the original statement.

- 4 In the spaces provided below, write the converse, the inverse, and the contrapositive of the statement "If I run, then I am tired."

Converse:

Inverse:

Contrapositive:

- 5 Given the statement: "If I live in Albany, then I am a New Yorker." In the spaces provided below, write the inverse, the converse, and the contrapositive of this statement.

Inverse:

Converse:

Contrapositive:

Which conditional is logically equivalent to its original statement?

inverse

converse

contrapositive

G.G.26: Conditional Statements: Identify and write the inverse, converse, and contrapositive of a given conditional statement and note the logical equivalences**Answer Section**

1 ANS: 1 PTS: 2 REF: 060823a

2 ANS: 1 PTS: 2 REF: 011320ge

3 ANS:

Contrapositive-If two angles of a triangle are not congruent, the sides opposite those angles are not congruent.

PTS: 2 REF: fall0834ge

4 ANS:

INVERSE: If I do not run, then I am not tired. CONVERSE: If I am tired, then I run. CONTRAPOSITIVE: If I am not tired, then I do not run.

PTS: 3 REF: 010837a

5 ANS:

INVERSE: If I do not live in Albany, then I am not a New Yorker. CONVERSE: If I am a New Yorker, then I live in Albany. CONTRAPOSITIVE: If I am not a New Yorker, then I do not live in Albany. The contrapositive is logically equivalent.

PTS: 4 REF: 080739a