

G.CO.C.9: Conditional Statements 1b

- 1 Which statement is logically equivalent to “If I eat, then I live”?
- 2 Which statement is logically equivalent to “If I did not eat, then I am hungry”?
- 3 Which statement is logically equivalent to “If the team has a good pitcher, then the team has a good season”?
- 4 Given the true statement: “If a person is eligible to vote, then that person is a citizen.” Which statement must also be true?
- 5 Which statement is logically equivalent to “If it is Saturday, then I am not in school”?
- 6 Which statement is logically equivalent to “If a triangle is an isosceles triangle, then it has two congruent sides”?
- 7 Which statement is logically equivalent to "If I am in a mathematics class, then I am having fun"?
- 8 Which statement is logically equivalent to the statement “If you are an elephant, then you do not forget”?
- 9 Which statement is logically equivalent to the statement "If Corey worked last summer, he buys a car"?
- 10 Which statement is logically equivalent to "If it is warm, then I go swimming"
- 11 “If Tom and Mary are classmates, then they go to the same school.” Which statement below is logically equivalent?
- 12 Which statement is logically equivalent to “If I sleep, then I will not eat”?
- 13 A conditional statement is always logically equivalent to its

- 14 Consider the relationship between the two statements below.

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

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

These statements are

- 1) inverses
 - 2) converses
 - 3) contrapositives
 - 4) biconditionals
- 15 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.

- 17 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

- 16 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:

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- 1 ANS:
If I do not live, then I do not eat.

REF: 060112a
- 2 ANS:
If I am not hungry, then I did eat.

REF: 080104a
- 3 ANS:
If the team does not have a good season, then the team does not have a good pitcher.

REF: 010220a
- 4 ANS:
Kayla is not a citizen; therefore, she is not eligible to vote.

REF: 010308a
- 5 ANS:
If I am in school, then it is not Saturday.

REF: 060308a
- 6 ANS:
If a triangle does not have two congruent sides, then it is not an isosceles triangle.

REF: 060405a
- 7 ANS:
If I am not having fun, then I am not in a mathematics class.

REF: 010930a
- 8 ANS:
If you forget, then you are not an elephant.

REF: 010513a
- 9 ANS:
If Corey does not buy a car, he did not work last summer.

REF: 080629a
- 10 ANS:
If I do not go swimming, then it is not warm.

REF: 081026ge
- 11 ANS:
If Mary and Tom do not go to the same school, then they are not classmates.

REF: spring9812a

12 ANS:
If I eat, then I will not sleep.

REF: 080829a

13 ANS:
contrapositive

REF: 060823a

14 ANS: 1 REF: 011320ge

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

REF: fall0834ge

16 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.

REF: 010837a

17 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.

REF: 080739a