

1. Write the converse of the statement "If today is Presidents' Day, then there is no school"? Determine the truth value. If the converse is true, write the statement as a biconditional.

2. Write the inverse of the statement "If it is sunny, I will play baseball"?

3. Write the statement that is logically equivalent to "If I eat, then I live"?

4. Given the true statement: "If a person is eligible to vote, then that person is a citizen." Which statement must also be true?
 1. Kayla is not a citizen; therefore, she is not eligible to vote.
 2. Juan is a citizen; therefore, he is eligible to vote.
 3. Marie is not eligible to vote; therefore, she is not a citizen.
 4. Morgan has never voted; therefore, he is not a citizen.

5. Write the converse of "If the sum of two angles is 180° , then the angles are supplementary"? Determine the truth value. If the converse is true, write the statement as a biconditional.

6. Write the inverse of "If the waves are small, I do not go surfing"?

7. Write the contrapositive of "If I live in Albany, then I am a New Yorker."

8. Write the negation of the statement "The Sun is shining"?

9. Which of the following statements has a truth value of *true*?

1. If two is an even integer, then three is an even integer.
2. Two is an even integer if and only if three is an even integer.
3. Two is an even integer or three is an even integer.
4. Two is an even integer and three is an even integer.

10. Write a statement that is logically equivalent to "If the team has a good pitcher, then the team has a good season"?

11.

- Given the statement: "If two sides of a triangle are congruent, then the angles opposite these sides are congruent."
- Given the converse of the statement: "If two angles of a triangle are congruent, then the sides opposite these angles are congruent."

What is true about this statement and its converse?

1. Both the statement and its converse are true.
2. Neither the statement nor its converse is true.
3. The statement is true but its converse is false.
4. The statement is false but its converse is true.

12.

- Write the statement in symbolic form, using the symbols given below.
- Tell whether the statement is true or false.

Let M represent “May has 31 days.” (True)
 Let J represent “June has 31 days.” (False)
 Let F represent “June follows May.” (True)

Example: May has 31 days and June has 31 days.

$$M \wedge J$$

False

If June follows May, then May has 31 days.

If June does not follow May, then June does not have 31 days.

June has 31 days or June does not follow May.

June follows May if and only if May has 31 days.

If June has 31 days, then May does not have 31 days.

June does not have 31 days.

