

# CONDITIONAL PROJECT (based on the work of K. Janiga)

A conditional statement is any statement that is written in the form of:

If \_\_\_\_\_ then \_\_\_\_\_.

The rules of logic allow us to alter conditional statements (in very specific ways) in order to apply the original conditional to specific situations.

1. Negation: the negation of any statement is the 'exact opposite' of the original statement. The easiest way to negate something is to insert the word 'not' into the statement (or remove the word 'not' from the statement).
  - The negation of the statement "**it is hot**" is the statement "**it is not hot**".
  - The negation of the statement "**today is not Tuesday**" is the statement "**today is Tuesday**".
  - The key to writing a good negation is that for any such pair of these statements, one (and only one) of the statements **MUST** be true—there are no 3<sup>rd</sup> options.
    - If you were using the statement "it is hot" and your negation was "it is cold", neither of these is true if the temperature is only warm.
2. Converse: rewriting a conditional statement by switching the "if" part with the "then" part.
  - Consider the **conditional statement**: If today is Tuesday, then tomorrow is Wednesday.
  - The **converse** is: If tomorrow is Wednesday, then today is Tuesday.
  - The words after the word "if" were simply replaced with the words after the word "then".
    - Sometimes, when you write a converse, you change the truthfulness of the statement.
    - A true statement can become false when it is written backwards.
3. Inverse: rewriting a conditional statement by **negating the "if" part** and **negating the "then" part** of the **original** statement.
  - Consider the **conditional statement**: If today is Tuesday, then tomorrow is Wednesday.
  - The **inverse** is: If today is **NOT** Tuesday, then tomorrow is **NOT** Wednesday.
4. Contrapositive: rewriting a conditional statement by negating the "if" part, negating the "then" part AND switching the them backwards.
  - You can think of the contrapositive as the inverse of the converse—switch the conditional backwards (converse) then write the negation of both parts (inverse).
  - Consider the **conditional statement**: If today is Tuesday, then tomorrow is Wednesday.
  - The **contrapositive** is: If tomorrow is not Wednesday, then today is not Tuesday.

The original conditional statement has logically the same truthfulness as the contrapositive.

The converse of a statement is logically the same as the inverse of the same statement.

Many times, you will see statements in which the 'conditional' is implied. This is often the case in advertising. The advertisers, in an attempt to sell you their product, will tell you what good things will happen if you buy their product. Some of these statements may be true; some of them may be partially true; others may be total fabrications.

You need to find 5 different advertisements—look in newspapers, magazines, on TV, etc.

1. **Identify the implied conditional** in the ad. Rewrite this conditional in 'if-then' form—is this statement True or False? Explain.
2. **Write the converse** of your 'if-then' conditional statement—is this statement True or False? Explain.
3. **Write the inverse** of your 'if-then' conditional statement—is this statement True or False? Explain.
4. **Write the contrapositive** of your 'if-then' conditional statement—is this statement True or False? Explain.

Extra Credit—Write your own ad for a made up product—this can be any product within reason.

Write the conditional form of your ad.

Write the converse of the conditional statement.

Write the inverse of the conditional statement.

Write the contrapositive of the conditional statement.

# #1 Ad for \_\_\_\_\_

Wording of the ad: \_\_\_\_\_

Conditional Form of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Converse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Inverse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Contrapositive of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because....

## #2 Ad for \_\_\_\_\_

Wording of the ad: \_\_\_\_\_

Conditional Form of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Converse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Inverse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Contrapositive of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because....

## #3 Ad for \_\_\_\_\_

Wording of the ad: \_\_\_\_\_

Conditional Form of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Converse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Inverse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Contrapositive of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because....

## #4 Ad for \_\_\_\_\_

Wording of the ad: \_\_\_\_\_

Conditional Form of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Converse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Inverse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Contrapositive of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because....

## #5 Ad for \_\_\_\_\_

Wording of the ad: \_\_\_\_\_

Conditional Form of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Converse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Inverse of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because...

Contrapositive of the Ad: if \_\_\_\_\_ then \_\_\_\_\_

True or False because....