**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_**

**ANSWER KEY**

**Worksheet 2**

**Complete the following problems using your notes. Show your work.**

1. Write the definition of inductive reasoning.

The process of forming conclusions on the basis of patterns, observations, examples, or experiments is called inductive reasoning. It takes specific premises and draws a broader general conclusion.

2. Write the definition of deductive reasoning.

The process of reasoning that takes general premises and makes a specific conclusion.

3. Multiple Choice: Counter Example - Which of the following integer numbers provides a counterexample showing that the statement is false?

Statement: The square of an integer is always an even number.

1. -4

ANSWER: C

1. -2
2. 1
3. 2
4. 4

4. Multiple Choice: Counter Example - Susan claims that all numbers that are multiples of 5 are also multiples of 10. Which of the following numbers can be used to show that Susan’s statement is not true?

1. 40

ANSWER: D

1. 36
2. 21
3. 15
4. 10
5. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a mathematical table used to determine if a compound statement is true or false.

truth table

1. Negate the following statement: Every polygon has four sides.

Every polygon does not have four sides.

1. The three basic logical connectives we use in determining the validity of a truth table are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

And, Or, Not

conditional statement

1. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is expressed in the form of “if p then q” where p and q are statements.
2. Write the converse, inverse, and the contrapositive for the following statement:

*If I am traveling to Miami, then I am traveling to Florida.*

If I am traveling to Florida, then I am traveling to Miami.

Converse:

If I am not traveling to Miami, then I am not traveling to Florida.

Inverse:

If I am not traveling to Florida, then I am not traveling to Miami.

Contrapositive: