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

**Worksheet 2**

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

1. Write the definition of inductive reasoning.

2. Write the definition of deductive reasoning.

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
2. -2
3. 1
4. 2
5. 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
2. 36
3. 21
4. 15
5. 10
6. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a mathematical table used to determine if a compound statement is true or false.
7. Negate the following statement: Every polygon has four sides.
8. The three basic logical connectives we use in determining the validity of a truth table are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
9. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is expressed in the form of “if p then q” where p and q are statements.
10. Write the converse, inverse, and the contrapositive for the following statement:

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

Converse:

Inverse:

Contrapositive: