**Honors Geometry LOGIC Name:**

1. Identify each of the statements below as a conditional, biconditional, disjunction or conjunction.

a) If it rains then it pours. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) My dog is smart and loyal. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) I will go if and only if you come with me. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) We will have cookies or ice cream for dessert. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e) It is a right angle if and only if it equals 90°. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f) This triangle is right and isosceles. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

g) If you study then you will pass. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

h) The number is positive or even. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Write the negation of the statements below.

a) The lines are parallel. b) The stove is not hot.

c) The integer is not even. d) The angle is acute.

3. Determine whether each statement below is true or false. If it is false explain why.

a) If an angle is not obtuse then it is acute.

b) Today is Monday if and only if tomorrow is Tuesday.

c) The number -18 is even or positive.

d) Today is Saturday or Sunday.

e) The number 7 is odd and prime.

f) A number is prime if and only if it is odd.

4. For each statement below write the converse, inverse, and contrapositive.

a) If it has 4 legs then it is not a fish.

 *Converse:*

 *Inverse:*

 *Contrapositive:*

b) If this is a line then it is straight.

 *Converse:*

 *Inverse:*

 *Contrapositive:*

5. Write the converse of each statement below. Decide whether the converse is true or false and *explain why*.

a) If today is Monday then tomorrow is not Friday.

b) If the shape is a square then it is a quadrilateral.

c) If a point divides a segment in half, then it is a midpoint.

6. Write a statement that is *logically equivalent* to the statements below.

a) If it is a triangle then it has three sides.

b) If you have a drivers license then you are not five years old.

 c) If it is not even then it is odd.