Name: _____Date: _____Hour: _____

Unit A (Logic) Review

1. Let p = "Larry has pizza" and q = "Larry carries in the groceries." Write $p \Leftrightarrow q$ in words.

   _____

2. Write this definition of a scalene triangle as **two** conditionals:

   A scalene triangle is a triangle with no sides of the same length.

   _____

   _____

3. Consider the statement, "*All octagons are quadrilaterals.*"

   a. Rewrite as a conditional statement.

   _____

   b. Write the proposition.

   _____

   c. Write the implication.

   _____

4. Consider the conditional, "*If $x \leq 30$, then $x < 29$.*"

   a. Give an instance of the conditional.

   _____

   b. Give a counterexample of the conditional.

   _____

5. **True/False.** If a statement is false, then the converse can be either true or false.

Name: _____Date: _____Hour: _____

6. Consider the statement, "*A figure is a Polygon if it has many sides".*

   a. Rewrite as a conditional statement.

   _____

   b. Write the proposition.

   _____

   c. Write the implication.

   _____

7. Consider the conditional, "If a figure is a Quadrilateral, then it has four sides."

   a. Write the converse of the conditional.

   _____

   b. Is the converse true or false?

   _____

8. Given *p = It is 4 pm and q = I take the dog for a walk*, write the following:

   a. Conditional:_____

   b. Converse:_____

   c. Inverse:_____

   d. Contrapositive:_____

   e. Bi-conditional:_____

   f. If the conditional is true, which other statement is also true? Explain.

   _____

Name: _____Date: _____Hour: _____

In numbers 9-12, use the Law of Detachment, Transitivity, and Contrapositive to make a conclusion.

9. (1) Marty drives to school whenever he has an early Chemistry lab.
(2) Marty has an early Chemistry lab every Wednesday.

_____

10. (1) Marty drives to school whenever he has an early Chemistry lab.
(2) Marty drives to school.

_____

11. (1) If ABCD is a square, then it is also a rectangle.
(2) If ABCD is a rectangle, then it is also a parallelogram.

_____

12. (1) Every square is a kite.
(2) Quadrilateral MNOP is not a kite.

_____

13. Using the grid below, determine who participates in what sport. Ajay, Maxine, Kenny, Lindsey, and Susan each play a different sport. The sports are basketball, soccer, tennis, baseball, and swimming.

(1) Maxine does not play soccer.
(2) Susan plays either tennis or she swims.
(3) Ajay plays either basketball or tennis, or he swims.
(4) Kenny does not play a sport with a ball.

	Basketball	**Soccer**	**Tennis**	**Baseball**	**Swimming**
Ajay					
Maxine					
Kenny					
Lindsey					
Susan					