

Name: \_\_\_\_\_

Date: \_\_\_\_\_

This worksheet is to be completed along with the T  $\vee$  F bulletin board. Once completed, please return the worksheet to Miss Davis. The worksheet will count as a homework grade, but there is also an extra credit question at the end. If correct, you can receive an extra 3 points towards your grade. All of the extra credit questions must be completed to receive the extra credit!

**Directions:** There are three statements in the thought bubbles on the bulletin board. In the pocket there are some letters. Using  $p$  and  $q$  as your variables, construct a truth table for each of the three statements using the method in which each of the letters or symbols of the statement in symbol notation have their own space. Fill out the appropriate questions on the worksheet for each of the three statements. Then answer the bonus question at the end.

### **Statement 1**

1. Define your variables.

Let  $p$  represent:

Let  $q$  represent:

2. Write the statement in symbol notation.
3. What are the final truth-values?

### **Statement 2**

4. Define your variables.

Let  $p$  represent:

Let  $q$  represent:

5. Write the statement in symbol notation.

6. What are the final truth-values?

**Statement 3**

7. Define your variables.

Let  $p$  represent:

Let  $q$  represent:

8. Write the statement in symbol notation.

9. What are the final truth-values?

**Bonus**

For each of the three statements, write a statement that is logically equivalent to the original.

**Statement 1**

**Statement 2**

**Statement 3**