

Math 1303 - Math in the Liberal Arts

Exam #1 - 2014.09.08

Name: _____

1. Write the following statements in symbolic logic form. Be sure to define your simple statements first.

(a) Thanksgiving is on Thursday, and Christmas is on Saturday or New Years is on Monday.

(b) Thanksgiving is on Thursday and Christmas is on Saturday, or New Years is on Monday.

(c) If Thanksgiving is on Thursday then Christmas is on Saturday, or New Years is on Monday.

(d) If Thanksgiving is on Thursday, then Christmas is on Saturday or New Years is on Monday.

2. Negate the following sentence: Today is Wednesday or we are not in logic class.

3. Consider the following four statements:

$$p \vee (q \wedge r), \quad p \wedge (q \vee r), \quad (p \vee q) \wedge (p \vee r), \quad (p \wedge q) \vee (p \wedge r)$$

These four statements can be grouped into two pairs of equivalent statements, find them.

4. Determine if the following argument is valid.

$$\begin{array}{l} p \vee q \\ p \rightarrow r \\ \hline \therefore q \vee r \end{array}$$