

CSci 1302 Assignment 4
Due Wedn., February 18th, 2004

Problem 1 (3 points). Demonstrate validity of the rule “hypothetical syllogism” on top of page 71 using a truth table.

Problem 2 (7 points). Exercise 5.4 on p. 76, Parts 2 and 3.

Problem 3 (25 points). Write down deductive proofs for the following arguments:

1.
$$\frac{(p \vee q) \Rightarrow r}{\neg r \Rightarrow \neg p}$$
2.
$$\frac{\neg(p \Rightarrow q) \quad p \Rightarrow r}{r}$$
3.
$$\frac{p \wedge \neg r \quad q \Rightarrow r}{\neg(p \Rightarrow q)}$$
 (use proof by contradiction)
4.
$$\frac{(p \wedge q) \Leftrightarrow r}{(r \Rightarrow p) \wedge (r \Rightarrow q)}$$
5.
$$\frac{(p \vee q) \Leftrightarrow r}{(p \Rightarrow r) \wedge (q \Rightarrow r)}$$