Homework, due in hard copy Friday 2/3/2012 at 10:10am

Please write your TF’s name on your homework, and list the names of any students with whom you collaborated.

1. Determine which of the following are equivalent to \((p \land q) \rightarrow r\) and which are equivalent to \((p \lor q) \rightarrow r\):*

   (a) \(p \rightarrow (q \rightarrow r)\)
   (b) \(q \rightarrow (p \rightarrow r)\)
   (c) \((p \rightarrow r) \land (q \rightarrow r)\)
   (d) \((p \rightarrow r) \lor (q \rightarrow r)\)

2. The operators \(\neg\) and \(\lor\) are sufficient to define the rest of our operators as well. Using just \(\neg\) and \(\lor\) (and parentheses), write formulas involving \(p\) and \(q\) that are logically equivalent to

   (a) \(p \land q\)
   (b) \(p \oplus q\)
   (c) \(p \Rightarrow q\)
   (d) \(p \Leftrightarrow q\)

*Credit: Paul Bamberg / Fun and Games with Discrete Mathematics