logic pset2

Final version: posted Saturday, Sep 13

A.

Use Conditional Proof (and possibly the previous rules) to prove the following sequents. A proof should have four columns: dependencies, line number, formula, and justification.

1. $P \to (Q \to R) \vdash Q \to (P \to R)$
2. $\neg P \vdash \neg(P \wedge Q)$
3. $P \vdash (P \to \neg P) \to \neg P$
4. $Q \vdash \neg(Q \to \neg Q)$

B.

Use $\vee$-elimination (and possibly the previous rules) to prove the following sequents. Do *not* use reductio ad absurdum for any of these proofs.

1. $P \wedge (Q \vee R) \vdash (P \wedge Q) \vee (P \wedge R)$
2. $P \vee Q, \neg P \vdash Q$