Discrete Mathematics
Drill-1

Moshe Rosenfeld

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moishe@u.washington.edu

1 Drill 1

Let p, q and s be the propositions:

1. p: you drive your xe may in Hanoi over 80 km an hour.
2. q: the police stops you.
3. s: the police takes away your xe may.

Write a sentence that means: $s \to p \wedge q$

Write the following propositions using the Boolean variables p, q, s and Boolean operators:

1. The police do not stop you.
2. You drive over 80 km an hour, the police stops you but they do not take away your xe may.
3. If you do not drive over 80 km an hour then the police will not stop you and the ywill not take away you xe may.

Construct the truth table for the following compound propositions:

1. $(\neg p \leftrightarrow \neg q) \leftrightarrow (p \leftrightarrow q)$
2. $((p \to q) \to r) \to s$
3. $(p \leftrightarrow q) \leftrightarrow (r \leftrightarrow s)$

Show that the following pairs are logically equivalent:

1. $p \vee (q \wedge r), (p \vee q) \wedge (p \vee r)$
2. $(p \wedge q) \to (p \vee q)$, **TRUE**