

### Propositional Logic Practice Questions

- Prove the following using either resolution or traditional logic, using these propositions:  
S : I study; G: I get good grades; E: I enjoy.

- If I study I make good grades.
- If I do not study I enjoy.  
 $\therefore$  either I make good grades or I enjoy

- Translate the following Propositional Logic to English sentences.

Let:

\_ E=Liron is eating

\_ H=Liron is hungry

- Translate the following English sentences to Propositional Logic.

Propositions: (R)aining, Liron is (S)ick, Liron is (H)ungry, Liron is (HA)ppy,  
Liron owns a (C)at, Liron owns a (D)og

- Which of the following propositions are tautologies? Which are contradictions?

Why?

- Three is a prime number.
  - It is raining or it is not raining.
  - It is raining (P) and it is not raining ( $\neg P$ ).
- Which of the following propositions are tautologies? Why?

P	$P \wedge \neg P$
t	f
f	f

- Which of the two following propositions are equivalent in the sense that one can always be substituted for the other one in any proposition without changing its truth value? Why?

(a) first proposition:  $P \Rightarrow Q$  second proposition:  $\neg P \vee Q$