

## Problem Set 02: PL Tables (Answers)

1. Use a truth table to test whether the following propositions are equivalent.

(a)  $\neg(L \rightarrow L)$ ,  $((L \wedge L) \wedge \neg L)$

(b) Answer:

L	$\neg(L \rightarrow L)$	$((L \wedge L) \wedge \neg L)$
T	F	F
F	F	F

2. Use a truth table to test whether the following argument is valid.

(a)  $((Y \rightarrow Y) \wedge Y)$ ,  $((Y \vee Y) \rightarrow (Y \rightarrow Z)) \therefore (Z \vee \neg X)$

(b) Answer:

X	Y	Z	$((Y \rightarrow Y) \wedge Y)$	$((Y \vee Y) \rightarrow (Y \rightarrow Z))$	$(Z \vee \neg X)$
T	T	T	T	T	T
T	T	F	T	F	F
T	F	T	F	T	T
T	F	F	F	T	F
F	T	T	T	T	T
F	T	F	T	F	T
F	F	T	F	T	T
F	F	F	F	T	T