

Math 240, Quiz 1

Circle One: T 12:05 T 2:25 R 12:05 R 2:25

Instructions: Answer all questions fully, showing work where necessary.
Construct a truth table for each of these compound propositions:

a) $p \rightarrow \neg p$

The truth table is this:

p	$p \rightarrow \neg p$
T	F
F	T

b) $(q \rightarrow \neg p) \leftrightarrow (p \leftrightarrow q)$

The truth table is this:

p	q	$q \rightarrow \neg p$	$p \leftrightarrow q$	$(q \rightarrow \neg p) \leftrightarrow (p \leftrightarrow q)$
T	T	F	T	F
T	F	T	F	F
F	T	T	F	F
F	F	T	T	T

c) $p \oplus (p \vee q)$

The truth table is this:

p	q	$p \vee q$	$p \oplus (p \vee q)$
T	T	T	F
T	F	T	F
F	T	T	T
F	F	F	F