

## Problem 1

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

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

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

$p$	$\neg p$	$(p \vee \neg p)$	$\neg(p \vee \neg p)$
$T$	$F$	$T$	$F$
$T$	$F$	$T$	$F$
$F$	$T$	$T$	$F$
$F$	$T$	$T$	$F$

## Problem 2

The most obvious WFF that would produce this truth table would be  $(p \rightarrow q)$ . An second WFF which produces the truth table would be  $(\neg p \vee q)$ .

## Problem 3

An example of a tautologous WFF would be  $(p \vee \neg p)$ . In this WFF, regardless of if  $p$  is true or false, the WFF will be true.