

# Propositional Logic

## Solution 1

(a)  $p \wedge q \Rightarrow p$

(b)

$p$	$q$	$\mathbf{p} \Rightarrow \mathbf{q}$
$t$	$t$	<b>t</b>
$t$	$f$	<b>f</b>
$f$	$t$	<b>t</b>
$f$	$f$	<b>t</b>

(c)  $\neg (p \wedge q) \Leftrightarrow \neg p \vee \neg q$

## Solution 2

(a)  $(p \vee q) \wedge r \Leftrightarrow p \wedge r \vee q \wedge r$

(b)

$p$	$q$	$\mathbf{p} \Leftrightarrow \mathbf{q}$
$t$	$t$	<b>t</b>
$t$	$f$	<b>f</b>
$f$	$t$	<b>f</b>
$f$	$f$	<b>t</b>

(c)  $p \Rightarrow (q \Rightarrow r)$