Section 9.2

(1)

p	$\sim p$	$p \wedge \sim p$
T	F	F
F	T	F

$p \wedge \sim p$ is a contradiction because the column for $p \wedge \sim p$ is all F's.

(2)

p	$\sim p$	$p \vee \sim p$
T	F	T
F	T	T

$p \vee \sim p$ is a tautology because the column for $p \vee \sim p$ is all T's.

(3)

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

(4)

p	q	r	$p \vee q$	$p \vee r$	$(p \vee q) \wedge (p \vee r)$
T	T	T	T	T	T
T	T	F	T	T	T
T	F	T	T	T	T
T	F	F	T	T	T
F	T	T	T	T	T
F	T	F	T	F	F
F	F	T	F	T	F
F	F	F	F	F	F

(5)

p	q	r	$\sim r$	$p \wedge \sim r$	$q \vee (p \wedge \sim r)$
T	T	T	F	F	T
T	T	F	T	T	T
T	F	T	F	F	F
T	F	F	T	T	T
F	T	T	F	F	T
F	T	F	T	F	T
F	F	T	F	F	F
F	F	F	T	F	F