
Chapter 2
Exercise 2.1

i

P Q	$P \vee (\sim P \vee Q)$
TT	T F T
TF	T F F
FT	T T T
FF	T T T

ii

P Q	$\sim(P \& Q) \vee P$
TT	F T T
TF	T F T
FT	T F T
FF	T F T

iii

P Q	$\sim(P \rightarrow Q) \rightarrow P$
TT	F T T
TF	T F T
FT	F T T
FF	F T T

iv

P Q	$(P \vee Q) \vee (\sim P \& Q)$
TT	T T F F
TF	T T F F
FT	T T T T
FF	F F T F

v

P Q R	$P \vee Q \rightarrow R \vee \sim P$
TTT	T T TF
TTF	T F FF
TFT	T T TF
TF F	T F FF
FTT	T T TT
FTF	T T TT
FFT	F T TT
FFF	F T TT

vi

P Q R	$R \leftrightarrow \sim P \vee (R \& Q)$
TTT	T F T T
TTF	T F F F
TFT	F F F F
TF F	T F F F
FTT	T T T T
FTF	F T T F
FFT	T T T F
FFF	F T T F

vii

P Q	$(P \& Q \leftrightarrow Q) \rightarrow (Q \rightarrow P)$
TT	T T T T
TF	F T T T
FT	F F T F
FF	F T T T

viii

P Q	$(P \leftrightarrow \sim Q) \leftrightarrow (\sim P \leftrightarrow \sim Q)$
TT	F F F F TF
TF	T T F F FT
FT	T F F T FF
FF	F T F T TT