P	Q	R	S	(P & Q)	∨	(R & S)	→	(P & R)	∨	(Q & S)
							x			
T	T	T	T	T	T	T	T	T	T	T
T	T	T	F	T	T	F	T	T	T	F
T	T	F	T	T	T	F	T	F	T	T
T	T	F	F	T	T	F	F	F	F	F
T	F	T	T	F	T	T	T	T	T	F
T	F	T	F	F	F	F	T	T	T	F
T	F	F	T	F	F	F	T	F	F	F
T	F	F	F	F	F	F	T	F	F	F
F	T	T	T	F	T	T	T	F	T	T
F	T	T	F	F	F	F	T	F	F	F
F	T	F	T	F	F	F	T	F	T	T
F	T	F	F	F	F	F	T	F	F	F
F	F	T	T	F	T	T	F	F	F	F
F	F	T	F	F	F	F	T	F	F	F
F	F	F	T	F	F	F	T	F	F	F
F	F	F	F	F	F	F	T	F	F	F

Exercise 3.2: valid or invalid

i   VALID

1	(1)	P & ∼Q	A
2	(2)	P ↔ Q	A [for RAA]
1	(3)	P	1 &E
1,2	(4)	Q	2,3 BP
1	(5)	∼Q	1 &E
1	(6)	∼(P ↔ Q)	4,5 RAA (2)

ii   INVALID   P:T   Q:F   R:T

iii   INVALID   P:T   Q:F   R:F

iv   VALID

1	(1)	P ∨ Q → R	A
2	(2)	P	A [for →I]
2	(3)	P ∨ Q	2 ∨I
1,2	(4)	R	1,3 →E
1	(5)	P → R	4 →I (2)

v   INVALID   P:T Q:T R:F