

Line	Formula	Justification
1	$((\neg p \vee q) \wedge (r \vee p)) \wedge (r \vee q)$	Asmp. I
2	$((\neg p \vee q) \wedge ((r \vee p) \wedge (r \vee q)))$	Associativity
3	$((\neg p \vee q) \wedge (r \vee (p \wedge q)))$	Distributivity
4	$((\neg p \vee q) \wedge r) \vee ((\neg p \vee q) \wedge (p \wedge q))$	Distributivity
5	$((\neg p \vee q) \wedge r) \vee ((\neg p \vee q) \wedge (q \wedge p))$	Commutation
6	$((\neg p \vee q) \wedge r) \vee (((\neg p \vee q) \wedge q) \wedge p)$	Associativity
7	$((\neg p \vee q) \wedge r) \vee ((q \wedge (\neg p \vee q)) \wedge p)$	Commutation
8	$((\neg p \vee q) \wedge r) \vee ((q \wedge (q \vee \neg p)) \wedge p)$	Commutation
9	$((\neg p \vee q) \wedge r) \vee (q \wedge p)$	Absorption
10	$((\neg p \vee q) \wedge r) \vee ((q \wedge p) \vee \perp)$	Unsatisfiability
11	$((\neg p \vee q) \wedge r) \vee ((q \wedge p) \vee (p \wedge \neg p))$	Constants
12	$((\neg p \vee q) \wedge r) \vee ((p \wedge q) \vee (p \wedge \neg p))$	Commutation
13	$((\neg p \vee q) \wedge r) \vee (p \wedge (q \vee \neg p))$	Distributivity
14	$((\neg p \vee q) \wedge r) \vee ((q \vee \neg p) \wedge p)$	Commutation
15	$((\neg p \vee q) \wedge r) \vee ((\neg p \vee q) \wedge p)$	Commutation
16	$(\neg p \vee q) \wedge (r \vee p)$	Distributivity