

Complete the truth tables.

1.

P	Q	R	$P \vee Q$	$P \supset R$	$\neg R$	$(P \supset R) \supset \neg R$	$\neg[(P \supset R) \supset \neg R]$	$(P \vee Q) \wedge \neg[(P \supset R) \supset \neg R]$
T	T	T	T	T	F	F	T	T
F	T	T	T	T	F	F	T	T
T	F	T	T	T	F	F	T	T
F	F	T	F	T	F	F	T	F
T	T	F	T	F	T	T	F	F
\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}
T	F	F	T	F	T	T	F	F
F	F	F	F	T	T	T	F	F

2.

P	R	$R \vee P$	$\neg P$	$(R \vee P) \wedge \neg P$	$[(R \vee P) \wedge \neg P] \supset P$	$\neg\{[(R \vee P) \wedge \neg P] \supset P\}$	$\neg\neg\{[(R \vee P) \wedge \neg P] \supset P\}$
T	T	T	F	F	T	F	T
\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}
\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}
\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}

3.

Q	R	$Q \wedge R$	$\neg R$	$(Q \wedge R) \wedge R$	$R \wedge \neg R$	$[(Q \wedge R) \wedge R] \supset (R \wedge \neg R)$	$\neg\{[(Q \wedge R) \wedge R] \supset (R \wedge \neg R)\}$
\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}
F	T	F	F	F	F	T	F
T	F	F	T	F	F	T	F
F	F	F	T	F	F	T	F

4.

P	Q	R	$Q \supset Q$	$R \supset P$	$Q \wedge R$	$(Q \wedge R) \vee (R \supset P)$	$\neg[(Q \wedge R) \vee (R \supset P)]$	$(Q \supset Q) \supset \neg[(Q \wedge R) \vee (R \supset P)]$
T	T	T	T	T	T	T	F	F
F	T	T	T	F	T	T	F	F
T	F	T	T	T	F	T	F	F
F	F	T	T	F	F	F	T	T
\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{F}
F	T	F	T	T	F	T	F	F
T	F	F	T	T	F	T	F	F
F	F	F	T	T	F	T	F	F

5.

P	Q	$P \supset Q$	$\neg P$	$\neg Q$	$\neg\neg P$	$(P \supset Q) \supset \neg\neg P$	$[(P \supset Q) \supset \neg\neg P] \wedge \neg Q$
\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}
\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}
\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}
\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}

6.

P	Q	$P \vee Q$	$Q \supset P$	$P \wedge P$	$(Q \supset P) \vee (P \vee Q)$	$Q \vee (P \wedge P)$	$[(Q \supset P) \vee (P \vee Q)] \supset [Q \vee (P \wedge P)]$
\textcircled{T}	T	T	T	T	T	T	T
\textcircled{F}	T	T	F	F	T	T	T
\textcircled{T}	F	T	T	T	T	T	T
\textcircled{F}	F	F	T	F	T	F	F

7.

P	Q	$P \supset P$	$\neg P$	$\neg Q$	$\neg P \wedge P$	$\neg Q \wedge (P \supset P)$	$[\neg Q \wedge (P \supset P)] \supset (\neg P \wedge P)$
\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}
\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}
\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}
\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}

8.

P	Q	R	$Q \supset P$	$Q \supset R$	$P \wedge R$	$(Q \supset P) \supset P$	$(Q \supset R) \wedge (P \wedge R)$	$[(Q \supset R) \wedge (P \wedge R)] \supset [(Q \supset P) \supset P]$
\textcircled{T}	T	T	\textcircled{T}	\textcircled{T}	T	T	T	\textcircled{T}
\textcircled{F}	\bar{T}	T	\textcircled{F}	\textcircled{T}	\bar{F}	\bar{T}	\bar{F}	\textcircled{T}
\textcircled{T}	\bar{F}	T	\textcircled{T}	\textcircled{T}	\bar{T}	\bar{T}	\bar{T}	\textcircled{T}
\textcircled{F}	\bar{F}	T	\textcircled{T}	\textcircled{T}	\bar{F}	\bar{F}	\bar{F}	\textcircled{T}
\textcircled{T}	T	\bar{F}	\textcircled{T}	\textcircled{F}	\bar{F}	\bar{T}	\bar{F}	\textcircled{T}
\textcircled{F}	\bar{T}	\bar{F}	\textcircled{F}	\textcircled{F}	\bar{F}	\bar{T}	\bar{F}	\textcircled{T}
\textcircled{T}	\bar{F}	\bar{F}	\textcircled{T}	\textcircled{T}	\bar{F}	\bar{T}	\bar{F}	\textcircled{T}
\textcircled{F}	\bar{F}	\bar{F}	\textcircled{T}	\textcircled{T}	\bar{F}	\bar{F}	\bar{F}	\textcircled{T}

9.

P	Q	R	$Q \wedge P$	$\neg R$	$(Q \wedge P) \supset R$	$[(Q \wedge P) \supset R] \wedge \neg R$	$\{[(Q \wedge P) \supset R] \wedge \neg R\} \supset \neg R$
T	\textcircled{T}	T	T	\textcircled{F}	T	\bar{F}	T
\bar{F}	\textcircled{T}	T	\bar{F}	\textcircled{F}	\bar{T}	\bar{F}	\bar{T}
T	\textcircled{F}	T	\bar{F}	\textcircled{F}	\bar{T}	\bar{F}	\bar{T}
\bar{F}	\textcircled{F}	T	\bar{F}	\textcircled{F}	\bar{T}	\bar{F}	\bar{T}
T	\textcircled{T}	\bar{F}	T	\textcircled{T}	\bar{F}	\bar{F}	\bar{T}
\bar{F}	\textcircled{T}	\bar{F}	\bar{F}	\textcircled{T}	\bar{T}	\bar{T}	\bar{T}
T	\textcircled{F}	\bar{F}	\bar{F}	\textcircled{T}	\bar{T}	\bar{T}	\bar{T}
\bar{F}	\textcircled{F}	\bar{F}	\bar{F}	\textcircled{T}	\bar{T}	\bar{T}	\bar{T}

10.

P	Q	R	$P \supset Q$	$Q \supset R$	$(P \supset Q) \wedge R$	$R \wedge (Q \supset R)$	$[R \wedge (Q \supset R)] \supset [(P \supset Q) \wedge R]$	$\neg\{[R \wedge (Q \supset R)] \supset [(P \supset Q) \wedge R]\}$
T	T	T	T	T	\textcircled{T}	T	T	\bar{F}
\bar{F}	\bar{T}	T	\bar{T}	\bar{T}	\textcircled{T}	\bar{T}	\bar{T}	$\bar{\bar{F}}$
\bar{T}	\bar{F}	\bar{T}	\bar{F}	\bar{T}	\textcircled{F}	\bar{T}	\bar{F}	\bar{T}
\bar{F}	\bar{F}	\bar{T}	\bar{T}	\bar{T}	\textcircled{T}	\bar{T}	\bar{T}	$\bar{\bar{F}}$
\bar{T}	\bar{T}	\bar{F}	\bar{T}	\bar{F}	\textcircled{F}	\bar{F}	\bar{T}	$\bar{\bar{F}}$
\bar{F}	\bar{T}	\bar{F}	\bar{T}	\bar{F}	\textcircled{F}	\bar{F}	\bar{T}	$\bar{\bar{F}}$
\bar{T}	\bar{F}	\bar{F}	\bar{F}	\bar{T}	\textcircled{F}	\bar{F}	\bar{T}	$\bar{\bar{F}}$
\bar{F}	\bar{F}	\bar{F}	\bar{T}	\bar{T}	\textcircled{F}	\bar{F}	\bar{T}	$\bar{\bar{F}}$

11.

P	Q	R	$Q \vee R$	$Q \supset Q$	$Q \wedge R$	$(Q \vee R) \vee (Q \supset Q)$	$P \wedge (Q \wedge R)$	$[(Q \vee R) \vee (Q \supset Q)] \wedge [P \wedge (Q \wedge R)]$
\bar{T}	T	T	\textcircled{T}	\bar{T}	T	T	\textcircled{T}	T
\bar{F}	\bar{T}	\bar{T}	\textcircled{T}	\bar{T}	\bar{T}	\bar{T}	\textcircled{F}	\bar{F}
\bar{T}	\bar{F}	\bar{T}	\textcircled{T}	\bar{T}	\bar{F}	\bar{T}	\textcircled{F}	\bar{F}
\bar{F}	\bar{F}	\bar{T}	\textcircled{T}	\bar{T}	\bar{F}	\bar{T}	\textcircled{F}	\bar{F}
\bar{T}	\bar{T}	\bar{F}	\textcircled{T}	\bar{T}	\bar{F}	\bar{T}	\textcircled{F}	\bar{F}
\bar{F}	\bar{T}	\bar{F}	\textcircled{T}	\bar{T}	\bar{F}	\bar{T}	\textcircled{F}	\bar{F}
\bar{T}	\bar{F}	\bar{F}	\textcircled{F}	\bar{T}	\bar{F}	\bar{T}	\textcircled{F}	\bar{F}
\bar{F}	\bar{F}	\bar{F}	\textcircled{F}	\bar{T}	\bar{F}	\bar{T}	\textcircled{F}	\bar{F}

12.

P	Q	R	$P \vee P$	$R \vee P$	$(R \vee P) \vee Q$	$Q \wedge (P \vee P)$	$[Q \wedge (P \vee P)] \vee [(R \vee P) \vee Q]$	$\neg\{[Q \wedge (P \vee P)] \vee [(R \vee P) \vee Q]\}$
T	T	T	T	T	T	T	T	F
\overline{F}	\overline{T}	\overline{T}	\overline{F}	\overline{T}	\overline{T}	\overline{F}	\overline{T}	\overline{F}
\overline{T}	\overline{F}	\overline{T}	\overline{T}	\overline{T}	\overline{T}	\overline{F}	\overline{T}	\overline{F}
\overline{F}	\overline{F}	\overline{T}	\overline{F}	\overline{T}	\overline{T}	\overline{F}	\overline{T}	\overline{F}
T	T	F	T	T	T	T	T	F
\overline{F}	\overline{T}	\overline{F}	\overline{F}	\overline{F}	\overline{T}	\overline{F}	\overline{T}	\overline{F}
T	F	F	T	T	T	F	T	F
\overline{F}	\overline{F}	\overline{F}	\overline{F}	\overline{F}	\overline{F}	\overline{F}	\overline{F}	\overline{T}

13.

P	Q	$\neg P$	$\neg Q$	$\neg Q \vee P$	$\neg P \supset \neg P$	$(\neg P \supset \neg P) \vee (\neg Q \vee P)$
\overline{T}	T	F	\overline{F}	\overline{T}	T	T
\overline{F}	\overline{T}	\overline{T}	\overline{F}	\overline{F}	\overline{T}	\overline{T}
\overline{T}	F	F	\overline{T}	\overline{T}	\overline{T}	\overline{T}
\overline{F}	F	T	\overline{T}	\overline{T}	\overline{T}	\overline{T}

14.

P	Q	R	$R \vee P$	$R \supset Q$	$P \wedge R$	$(R \vee P) \vee (P \wedge R)$	$(R \supset Q) \supset R$	$[(R \vee P) \vee (P \wedge R)] \vee [(R \supset Q) \supset R]$
\overline{T}	T	T	\overline{T}	T	\overline{T}	T	T	\overline{T}
\overline{F}	\overline{T}	T	\overline{T}	\overline{T}	\overline{F}	\overline{T}	\overline{T}	\overline{T}
\overline{T}	F	T	\overline{T}	F	\overline{T}	\overline{T}	\overline{T}	\overline{T}
\overline{F}	F	T	\overline{T}	F	\overline{F}	\overline{T}	\overline{T}	\overline{T}
\overline{T}	\overline{T}	F	\overline{T}	\overline{T}	\overline{F}	\overline{T}	F	\overline{T}
\overline{F}	\overline{T}	F	\overline{F}	\overline{T}	\overline{F}	\overline{F}	F	\overline{F}
\overline{T}	F	F	\overline{T}	\overline{T}	\overline{F}	\overline{T}	F	\overline{T}
\overline{F}	F	F	\overline{F}	\overline{T}	\overline{F}	\overline{F}	F	\overline{F}

15.

P	Q	R	$Q \wedge P$	$\neg R$	$(Q \wedge P) \wedge R$	$\neg[(Q \wedge P) \wedge R]$	$\neg[(Q \wedge P) \wedge R] \supset \neg R$	$\neg\{\neg[(Q \wedge P) \wedge R] \supset \neg R\}$
T	T	\overline{T}	T	\overline{F}	T	F	\overline{T}	\overline{F}
F	T	\overline{T}	F	\overline{F}	F	\overline{T}	\overline{F}	\overline{T}
T	F	\overline{T}	F	\overline{F}	F	\overline{T}	\overline{F}	\overline{T}
F	F	\overline{T}	F	\overline{F}	F	\overline{T}	\overline{F}	\overline{T}
T	T	\overline{F}	T	\overline{T}	F	\overline{T}	\overline{T}	\overline{F}
F	T	\overline{F}	F	\overline{T}	F	\overline{T}	\overline{T}	\overline{F}
T	F	\overline{F}	F	\overline{T}	F	\overline{T}	\overline{T}	\overline{F}
F	F	\overline{F}	F	\overline{T}	F	\overline{T}	\overline{T}	\overline{F}

16.

P	Q	R	$P \vee P$	$R \vee P$	$P \supset Q$	$(R \vee P) \vee (P \vee P)$	$\neg(P \supset Q)$	$\neg(P \supset Q) \wedge [(R \vee P) \vee (P \vee P)]$
T	T	T	T	T	T	T	F	F
F	\overline{T}	\overline{T}	\overline{F}	\overline{T}	\overline{T}	\overline{T}	F	\overline{F}
\overline{T}	\overline{F}	\overline{T}	\overline{T}	\overline{T}	\overline{F}	\overline{T}	\overline{T}	\overline{T}
F	F	\overline{T}	\overline{F}	\overline{T}	T	\overline{T}	F	\overline{F}
T	T	F	T	T	T	T	F	F
\overline{F}	\overline{T}	\overline{F}	\overline{F}	\overline{F}	\overline{T}	\overline{F}	\overline{F}	\overline{F}
T	F	F	T	T	F	\overline{T}	T	\overline{T}
F	F	F	\overline{F}	\overline{F}	T	\overline{F}	F	\overline{F}

17.

23.

Q	R	$Q \vee Q$	$Q \supset R$	$\neg R$	$(Q \vee Q) \vee Q$	$(Q \supset R) \supset [(Q \vee Q) \vee Q]$	$\{(Q \supset R) \supset [(Q \vee Q) \vee Q]\} \vee \neg R$
\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}
\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}
\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}
\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}

24.

P	$P \supset P$	$\neg P$	$(P \supset P) \wedge \neg P$	$[(P \supset P) \wedge \neg P] \vee P$	$\neg\{[(P \supset P) \wedge \neg P] \vee P\}$	$\neg\neg\{[(P \supset P) \wedge \neg P] \vee P\}$
\textcircled{T}	T	F	\textcircled{F}	T	F	T
\textcircled{F}	T	T	\textcircled{T}	T	F	T

25.

P	Q	R	$P \vee Q$	$Q \vee P$	$Q \wedge R$	$(Q \vee P) \wedge (Q \wedge R)$	$\neg(P \vee Q)$	$\neg(P \vee Q) \vee [(Q \vee P) \wedge (Q \wedge R)]$
T	T	T	T	T	T	T	F	T
F	T	T	T	T	T	T	F	T
\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}
F	F	T	F	F	F	F	T	T
T	T	F	T	T	F	F	F	F
F	T	F	T	T	F	F	F	F
T	F	F	T	T	F	F	F	F
\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}

26.

P	Q	R	$Q \wedge R$	$\neg P$	$\neg R$	$\neg R \vee (Q \wedge R)$	$\neg P \wedge P$	$[\neg R \vee (Q \wedge R)] \vee (\neg P \wedge P)$
T	T	T	T	\textcircled{F}	F	\textcircled{T}	F	T
F	T	T	T	\textcircled{T}	F	\textcircled{T}	F	T
T	F	T	F	\textcircled{F}	F	\textcircled{F}	F	F
F	F	T	F	\textcircled{T}	F	\textcircled{F}	F	F
T	T	F	F	\textcircled{F}	T	\textcircled{T}	F	T
F	T	F	F	\textcircled{T}	T	\textcircled{T}	F	T
T	F	F	F	\textcircled{F}	T	\textcircled{T}	F	T
F	F	F	F	\textcircled{T}	T	\textcircled{T}	F	T

27.

P	Q	R	$R \vee P$	$\neg Q$	$(R \vee P) \wedge P$	$\neg Q \supset [(R \vee P) \wedge P]$	$\{\neg Q \supset [(R \vee P) \wedge P]\} \wedge \neg Q$
\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}
F	T	T	T	F	F	T	F
T	F	T	T	T	T	T	T
F	F	T	T	T	F	F	F
\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}
\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{F}
\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}
\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}

28.

P	Q	$P \vee Q$	$Q \wedge P$	$\neg Q$	$(Q \wedge P) \supset \neg Q$	$Q \wedge (P \vee Q)$	$[Q \wedge (P \vee Q)] \vee [(Q \wedge P) \supset \neg Q]$
\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}
\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}
\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}
\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}

P	Q	R	$P \vee Q$	$\neg R$	$\neg R \vee Q$	$(P \vee Q) \wedge Q$	$[(P \vee Q) \wedge Q] \wedge P$	$\{[(P \vee Q) \wedge Q] \wedge P\} \wedge (\neg R \vee Q)$
T	T	T	T	\textcircled{F}	T	\textcircled{T}	T	T
F	T	T	T	\textcircled{F}	T	\textcircled{T}	F	F
T	F	T	T	\textcircled{F}	F	\textcircled{F}	F	F
F	F	T	F	\textcircled{F}	F	\textcircled{F}	F	F
T	T	F	T	\textcircled{T}	T	\textcircled{T}	T	T
F	T	F	T	\textcircled{T}	T	\textcircled{T}	F	F
T	F	F	T	\textcircled{T}	T	\textcircled{F}	F	F
F	F	F	F	\textcircled{T}	T	\textcircled{F}	F	F

35.

P	Q	$\neg P$	$\neg Q$	$\neg Q \supset \neg P$	$\neg(\neg Q \supset \neg P)$
\textcircled{T}	T	F	F	\textcircled{T}	F
\textcircled{F}	T	T	F	\textcircled{T}	F
\textcircled{T}	F	F	T	\textcircled{F}	T
\textcircled{F}	F	T	T	\textcircled{T}	F

36.

P	Q	$\neg P$	$\neg Q$	$\neg Q \supset P$	$\neg\neg P$	$\neg(\neg Q \supset P)$	$\neg\neg P \supset \neg(\neg Q \supset P)$
\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}
F	T	T	F	T	F	F	T
T	F	F	T	T	T	F	F
F	F	T	T	F	F	T	T

37.

P	Q	R	$R \vee P$	$R \vee Q$	$R \vee R$	$(R \vee R) \supset (R \vee Q)$	$Q \wedge (R \vee P)$	$[Q \wedge (R \vee P)] \supset [(R \vee R) \supset (R \vee Q)]$
T	T	T	\textcircled{T}	T	T	\textcircled{T}	T	T
F	T	T	\textcircled{T}	T	T	\textcircled{T}	T	T
T	F	T	\textcircled{T}	T	T	\textcircled{T}	F	T
F	F	T	\textcircled{T}	T	T	\textcircled{T}	F	T
T	T	F	\textcircled{T}	T	F	\textcircled{T}	T	T
F	T	F	\textcircled{F}	T	F	\textcircled{T}	F	T
T	F	F	\textcircled{T}	F	F	\textcircled{T}	F	T
F	F	F	\textcircled{F}	F	F	\textcircled{T}	F	T

38.

P	R	$R \vee P$	$R \wedge P$	$R \wedge R$	$(R \vee P) \wedge (R \wedge R)$	$\neg(R \wedge P)$	$[(R \vee P) \wedge (R \wedge R)] \supset \neg(R \wedge P)$
\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{F}
\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{T}	\textcircled{T}	\textcircled{T}
\textcircled{T}	\textcircled{F}	\textcircled{T}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}
\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{F}	\textcircled{T}	\textcircled{T}

39.

P	R	$R \vee R$	$R \supset R$	$P \wedge R$	$(R \supset R) \vee (R \vee R)$	$[(R \supset R) \vee (R \vee R)] \supset (P \wedge R)$	$\{[(R \supset R) \vee (R \vee R)] \supset (P \wedge R)\}$
T	\textcircled{T}	T	\textcircled{T}	\textcircled{T}	T	T	T
F	\textcircled{T}	T	\textcircled{T}	\textcircled{F}	T	F	F
T	\textcircled{F}	F	\textcircled{T}	\textcircled{F}	T	F	T
F	\textcircled{F}	F	\textcircled{T}	\textcircled{F}	T	F	F

40.

P	Q	$Q \vee Q$	$Q \supset Q$	$\neg P$	$\neg P \vee (Q \supset Q)$	$[\neg P \vee (Q \supset Q)] \vee (Q \vee Q)$	$\neg\{[\neg P \vee (Q \supset Q)] \vee (Q \vee Q)\}$
T	T	T	T	F	T	T	F
F	T	T	T	T	T	T	F
T	F	F	T	F	T	T	F
F	F	F	T	T	T	T	F

41.

Q	R	$R \wedge R$	$\neg Q$	$(R \wedge R) \wedge \neg Q$	$(R \wedge R) \wedge Q$	$[(R \wedge R) \wedge \neg Q] \vee [(R \wedge R) \wedge Q]$
T	T	T	F	F	T	T
F	T	T	T	T	F	T
T	F	F	F	F	F	F
F	F	F	T	F	F	F

42.

P	$P \vee P$	$P \supset P$	$\neg P$	$(P \supset P) \supset \neg P$	$\neg(P \vee P)$	$[(P \supset P) \supset \neg P] \wedge \neg(P \vee P)$
T	T	T	F	F	F	F
F	F	T	T	T	T	T

43.

P	Q	R	$P \wedge R$	$Q \wedge (P \wedge R)$	$[Q \wedge (P \wedge R)] \supset P$	$\neg\{[Q \wedge (P \wedge R)] \supset P\}$	$\neg\neg\{[Q \wedge (P \wedge R)] \supset P\}$	$\neg\neg\neg\{[Q \wedge (P \wedge R)] \supset P\}$
T	T	T	T	T	T	F	T	F
F	T	T	F	F	T	F	T	F
T	F	T	T	F	T	F	T	F
F	F	T	F	F	T	F	T	F
T	T	F	F	F	T	F	T	F
F	T	F	F	F	T	F	T	F
T	F	F	F	F	T	F	T	F
F	F	F	F	F	T	F	T	F

44.

P	Q	R	$Q \vee P$	$P \wedge Q$	$R \wedge Q$	$(Q \vee P) \supset Q$	$(R \wedge Q) \wedge (P \wedge Q)$	$[(Q \vee P) \supset Q] \wedge [(R \wedge Q) \wedge (P \wedge Q)]$
T	T	T	T	T	T	T	T	T
F	T	T	T	F	T	T	F	F
T	F	T	T	F	F	F	F	F
F	F	T	F	F	F	T	F	F
T	T	F	T	T	F	T	F	F
F	T	F	T	F	F	T	F	F
T	F	F	T	F	F	F	F	F
F	F	F	F	F	F	T	F	F

45.

P	Q	R	$P \vee Q$	$Q \vee R$	$Q \wedge R$	$(Q \vee R) \vee (Q \wedge R)$	$\neg(P \vee Q)$	$[(Q \vee R) \vee (Q \wedge R)] \vee \neg(P \vee Q)$
T	T	T	T	T	T	T	F	T
F	T	T	T	T	T	T	F	T
T	F	T	T	T	F	T	F	T
F	F	T	F	T	F	T	T	T
T	T	F	T	T	F	T	F	T
F	T	F	T	T	F	T	F	T
T	F	F	T	F	F	F	F	F
F	F	F	F	F	F	F	T	T

46.

