▶. Let P, Q, and R be statements. Complete the following six truth tables by putting T or F in the appropriate boxes (i.e., in the boxes are that either have a ? or are blank). Recall there are several helful Screencasts (just click) (watch Screencasts 2.1.2–2.1.6).

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1. Truth Table to compare compound statements $P \iff Q$ and $(P \implies Q) \land (Q \implies P)$.

(a)	(b)	(c)	(d)	(e)	(f)
P	Q	$P \implies Q$	$Q \implies P$	$P \iff Q$	$(P \implies Q) \land (Q \implies P)$
T	T	?	?	?	?
T	F				
F	T				
F	F				

2. Truth Table to compare compound statements $\sim (P \land Q)$ and $(\sim P) \lor (\sim Q)$.

(a)	(b)	(c)	(d)	(e)	(f)	(g)
P	Q	$\sim P$	$\sim Q$	$P \land Q$	$\sim (P \land Q)$	$(\sim P) \lor (\sim Q)$
T	T	?	?	?	?	?
T	F					
F	T					
F	F					

3. Truth Table to compare compound statements $P \implies Q$ an $(\sim P) \lor Q$.

(a)	(b)	(c)	(d)	(e)
P	Q	$\sim P$	$P \implies Q$	$(\sim P) \lor Q$
T	T	?	?	?
T	F			
F	T			
F	F			

See next page for more.

4. Truth Table to compare compound statements $\sim (P \implies Q)$ and $P \wedge (\sim Q)$.

(a)	(b)	(c)	(d)	(e)	(f)
P	Q	$\sim Q$	$P \implies Q$	$\sim (P \implies Q)$	$P \wedge (\sim Q)$
T	T	?	?	?	?
T	F				
F	T				
F	F				

5. Truth Table to compare compound statements $\sim (P \wedge Q)$ and $P \implies (\sim Q)$.

(a)	(b)	(c)	(d)	(e)	(f)
P	Q	$\sim Q$	$P \wedge Q$	$\sim (P \wedge Q)$	$P \implies (\sim Q)$
T	T	?	?	?	?
T	F				
F	T				
F	F				

6. Truth Table to compare compound statements $P \implies (Q \vee R)$ and $(P \wedge (\sim Q)) \implies R$.

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
P	Q	R	$Q \vee R$	$\sim Q$	$P \wedge (\sim Q)$	$P \implies (Q \vee R)$	$(P \wedge (\sim Q)) \implies R$
T	T	T	?	?	?	?	?
T	T	F					
T	F	T					
T	F	F					
F	T	T					
F	T	F					
F	F	T					
F	F	F					