

Q1) a)  $S_1 : \neg(S \vee Q)$

	$S$	$Q$	$S \vee Q$	$\neg(S \vee Q)$
	T	T	T	F
	T	F	T	F
	F	T	T	F
	F	F	F	T

$S_2 : (S \vee Q) \wedge (\neg S \vee \neg Q)$

$S$	$\neg S$	$Q$	$\neg Q$	$S \vee Q$	$\neg S \vee \neg Q$	$(S \vee Q) \wedge (\neg S \vee \neg Q)$
T	F	T	F	T	F	F
T	F	F	T	T	T	T
F	T	T	F	T	F	F
F	T	F	T	F	T	F

T	F	T	T	T	T
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T	F	F	T	F	F
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F	T	T	T	T	T
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F	T	F	F	T	F
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$$S3: ((Q \vee \neg T) \wedge (Q \vee T))$$

Q	$\neg T$	T	$Q \vee T$	$Q \vee \neg T$	$((Q \vee \neg T) \wedge (Q \vee T))$
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T	F	T	T	T	T
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T	T	F	T	T	T
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F	T	F	F	T	F
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F F T T F F

S4:  $(\neg T \vee (\neg Q \vee \neg S))$

T Q S  $\neg T$   $\neg S$   $\neg Q$   $\neg Q \vee \neg S$   $\neg T \vee (\neg Q \vee \neg S)$

T T T F F F F F

T T F F T F T T

T F T F F T T T

F T T T F F F T

T F F F T T T T

F T F T T F T T

F F T T F T T T

F F F T T T T T

