

Homework 4

Math 2100/2105/
2350
Fall 2018

1

1) $\neg P \vee (q \wedge \neg q) \stackrel{?}{=} \neg P$

P	q	$\neg P$	$\neg q$	$(q \wedge \neg q)$	$\neg P \vee ()$
T	T	F	F	F	F
T	F	F	T	F	F
F	T	T	F	F	T
F	F	T	T	F	T

contradiction

Same, so

$\neg P \vee (q \wedge \neg q) \equiv \neg P$

2) [graded question]

3) Let $p =$ "Q is telling the truth", $q =$ "R is telling the truth",
 $r =$ "S is telling the truth"

P	q	\neg	Q says # lying odd	R says # lying even	S says # lying positive
T	T	T	F	T	F
T	T	F	T	F	T
T	F	T	T	F	T
T	F	F	F	T	T
F	T	T	T	F	T
F	T	F	F	T	T
F	F	T	F	T	T
F	F	F	T	F	T

No rows are consistent,
So this is not possible.
No solution.

4) [graded question]