

$(P \vee Q) \rightarrow P$

Quiz 1 MATH 2510 Spring 2019

4) Show  $P \rightarrow P$  is a tautology.

5) Yes

P	$P \rightarrow P$
T	T
F	T

6) P - true, Q - false, R - false

Show Q is a propositional consequence of  $P \wedge Q$ .

a)

P	Q	$P \wedge Q$	$(P \wedge Q) \rightarrow Q$
T	T	T	T
T	F	F	T
F	T	F	T
F	F	F	T

$Q \leftrightarrow Q$  is true

c)  $\neg P \leftrightarrow Q$

d)  $(P \vee R) \leftrightarrow (Q \vee R)$

$(\neg T) \leftrightarrow F$

$(T \vee R) \leftrightarrow (F \vee R)$

$F \leftrightarrow F$

$T \leftrightarrow F$

true

false

e)  $P \wedge (Q \wedge (R \vee P))$

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

$T$   
 $F$

P	Q	R	$P \wedge (Q \wedge (R \vee P))$
T	T	T	T
T	T	F	T
T	F	T	F
T	F	F	F
F	T	T	F
F	T	F	F
F	F	T	F
F	F	F	F