Name: Richard

QUIZ 6 ♠

MATH 211
February 7, 2023

1. Use a truth table to decide if $P \Rightarrow \neg Q$ and $\neg P \vee \neg Q$ are logically equivalent.

P	Q	$\neg Q$	$\neg P$	$P \Rightarrow \neg Q$	$\neg P \vee \neg Q$
T	T	F	F	F	F
T	F	T	F	T	T
F	T	F	T	T	T
F	F	T	T	T	T

match!

The two expressions are logically equivalent.

Name: Richard

QUIZ 6 ♢

MATH 211
February 7, 2023

1. Use a truth table to decide if $P \vee Q$ and $(P \wedge Q) \vee (P \wedge \neg Q)$ are logically equivalent.

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

don't match!

The two expressions are <u>not</u> logically equivalent.

Name: Richard

QUIZ 6 ♣

MATH 211
February 7, 2023

1. Use a truth table to decide if $\neg P \vee Q$ and $\neg Q \Rightarrow \neg P$ are logically equivalent.

P	Q	¬Q	¬P	¬P ∨ Q	¬Q ⇒ ¬P
T	T	F	F	T	T
T	F	T	F	F	F
F	T	F	T	T	T
F	F	T	T	T	T

The two expressions are logically equivalent

Name: Richard

QUIZ 6 ♡

MATH 211
February 7, 2023

1. Use a truth table to decide if $\neg P \wedge (P \Rightarrow Q)$ and $\neg(Q \Rightarrow P)$ are logically equivalent.

P	Q	¬P	P ⇒ Q	Q ⇒ P	¬P ∧ (P ⇒ Q)	¬(Q ⇒ P)
T	T	F	T	T	F	F
T	F	F	F	T	F	F
F	T	T	T	F	T	T
F	F	T	T	T	T	F

don't match

The two expressions are not logically equivalent