Name: Richard

QUIZ 5 ♠

MATH 211
February 2, 2023

1. Complete the truth tables.

(a)

P	Q	$P \vee Q$
T	T	T
T	F	T
F	T	T
F	F	F

(b)

P	Q	$P \wedge Q$
T	T	T
T	F	F
F	T	F
F	F	F

(c)

P	Q	$P \Rightarrow Q$
T	T	T
T	F	F
F	T	T
F	F	T

(d)

P	Q	$P \Leftrightarrow Q$
T	T	T
T	F	F
F	T	F
F	F	T

2. Without changing its meaning, convert each sentence to a sentence of form "If P, then Q."

(a) Whenever a number is divisible by 4, it is even.

If a number is divisible by 4, then it is even.

(b) A function is continuous provided that it is differentiable.

If a function is differentiable, then it is continuous.

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(d)

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T	T	T
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2. Without changing its meaning, convert each sentence to a sentence of form "If P, then Q."

(a) You use an umbrella only if it is raining.

If you use an umbrella, then it is raining.

(b) Whenever you are lost, consult a map.

If you are lost, then use a map.

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F	T	F
F	F	T

2. Without changing its meaning, convert each sentence to a sentence of form "If P, then Q."

   (a) The quadratic formula applies provided that you are solving a quadratic equation.

   If you are solving a quadratic equation, then the quadratic formula applies.

   (b) Work carefully whenever you take a quiz.

   If you take a quiz, then work carefully.

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P	Q	$P \Leftrightarrow Q$
T	T	T
T	F	F
F	T	F
F	F	T

2. Without changing its meaning, convert each sentence to a sentence of form "If P, then Q."

   (a) For a number to be even, it is sufficient that it be a multiple of 4.

   If a number is a multiple of 4, then it is even.

   (b) Whenever the derivative of a function is zero, the function is a constant function.

   If the derivative of a function is zero, then the function is a constant function.