

Math 099 - Assignment 6

March 19, 2019

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary. This assignment is worth 5 points.

1. Use truth tables to show that the statement $\sim(p \rightarrow q)$ is logically equivalent to the statement $\sim q \wedge p$.

p	q	$p \rightarrow q$	$\sim(p \rightarrow q)$
T	T	T	F
T	F	F	T
F	T	T	F
F	F	T	F

p	q	$\sim q$	$\sim q \wedge p$
T	T	F	F
T	F	T	T
F	T	F	F
F	F	T	F

SAME
TRUTH.
TABLE
 $\sim(p \rightarrow q)$
 \equiv
 $\sim q \wedge p$

2. Consider the following statement

If Bernie gets elected, then college will be free.

- (a) Determine the antecedent (and call it P).

P : BERNIE GET ELECTED.

- (b) Determine the consequent (and call it Q).

Q : COLLEGE WILL BE FREE.

- (c) Write the statement in symbolic form.

$P \rightarrow Q$

- (d) Use problem #1 to write the symbolic form of the negation of the statement.

$P \wedge (\sim Q)$

- (e) Write the negation in words.

BERNIE GETS ELECTED, AND COLLEGE WON'T
BE FREE.