Bryan
Answer key

4:30

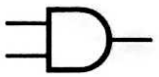
(b)

Math 55 Quiz 1
August 31, 2016

This quiz will be graded out of 15 points; the True/False question is worth 3 points, and the exercise is worth 12 points. Please read the instructions carefully.

True or False. Mark the following statements as either true or false, or leave a blank if you don't know. A correct answer is worth +1 point, a blank is worth 0 points, and an incorrect answer is worth -1 points, so be smart about guessing!

a. F The following symbol represents an OR gate in a combinatorial circuit diagram:



b. T The compound proposition $((p \wedge \neg q) \oplus (\neg q \vee s)) \rightarrow (r \vee t \vee u)$ has a truth table with 64 rows.

c. T For an implication $p \rightarrow q$, the *contrapositive* is given by $\neg q \rightarrow \neg p$.

❋

Exercise. Let p, q and r denote the propositions

p: The rain in Spain falls mainly on the plain
q: The Spaniard's zebra is soaked
r: The Spaniard lives mainly on the plain

(6 points) Write an English expression to denote the compound proposition:

$$(p \wedge q) \rightarrow r$$

If the rain in Spain falls mainly on the plain and the Spaniard's zebra is soaked, then the Spaniard lives mainly on the plain.

(6 points) Additionally, construct a (complete) truth table for this proposition.

p	q	r	$p \wedge q$	$(p \wedge q) \rightarrow r$
T	T	T	T	T
T	T	F	T	F
T	F	T	F	T
T	F	F	F	T
F	T	T	F	T
F	T	F	F	T
F	F	T	F	T
F	F	F	F	T