

Midterm Study Guide

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1 Arguments

For each of the following, put the argument in propositional form, then draw a truth table to prove whether it is valid or invalid.

Here's a sample truth table for you to work with:

A	B
T	T
T	F
F	T
F	F

And a 3 column one:

A	B	C
T	T	T
T	F	T
F	T	T
F	F	T
T	T	F
T	F	F
F	T	F
F	F	F

1. (a) Not both A and B.
∴ Not A or not B.

2. You can go to graduate school only if you graduate from college. Therefore, if you didn't graduate from college, you didn't go to graduate school.

3. (a) The clock is not correct.
∴ It is not the case that it is not the case that the clock is not correct.

4. (a) If we didn't eat out and go to the show, then we can go to the show or get ice cream.
∴ If we didn't go to the show or get ice cream, then we cannot eat out and go to the show.

2 Label the antecedent and consequent

1. If it is cold, I will not be in class.
2. I'll vote for him only if he promises to lower taxes.

3. Only if you are 48 inches tall can you ride the ride.

3 Fill in the truth table

1.	A	B	A if and only if B
	T	T	
	T	F	
	F	T	
	F	F	

2.	A	B	C	If A and B, then not (C or not B BNB)
	T	T	T	
	T	F	T	
	F	T	T	
	F	F	T	
	T	T	F	
	T	F	F	
	F	T	F	
	F	F	F	

3. Note that \leftrightarrow is 'if and only if'.

A	B	C	$(A \leftrightarrow B) \leftrightarrow (B \leftrightarrow C)$
T	T	T	
T	F	T	
F	T	T	
F	F	T	
T	T	F	
T	F	F	
F	T	F	
F	F	F	