

Homework 1, MORALLY Due Feb 3

1. (0 points but you have to answer) What is your name? Write it clearly. Staple your HW.
2. (25 points) When is the first midterm (give Date and Time)? When is the second midterm (give Date and Time)? When is the final (give Date and Time)? By when do you have to inform Professor Gasarch that you cannot make the timeslot of the first or second midterm?
3. (25 points) Give a Propositional Formula on four variables that has exactly two satisfying assignments. Give both satisfying assignments.
4. (25 points)
 - Do a truth table for $(p \Rightarrow q) \Rightarrow r$.
 - Do a truth table for $p \Rightarrow (q \Rightarrow r)$.
 - Are they equivalent? If NOT then state a row where they differ.
5. (25 points) A couple is a DINK (double income, no kids) if they are married, both work, and they do not have children. On Jan 1, 2014 Alice and Bob are a DINK. On Jan 1, 2015 Alice and Bob are NOT a DINK.
 - Let M be the statement *Alice and Bob are married*.
 - Let K be the statement *Alice and Bob have kids*.
 - Let A be the statement *Alice has a job*.
 - Let B be the statement *Bob has a job*.
 - (a) Give a Boolean formula (a formula with AND, OR and NOT) on the variables M, K, A, B that is TRUE on Jan 1, 2014 and conveys as much information as possible.
 - (b) Give a Boolean formula (a formula with AND, OR and NOT) on the variables M, K, A, B that is TRUE on Jan 1, 2015 and conveys as much information as possible.