EE 2720, Spr. 06

HW #3

Due Friday March 3, 06 at 12:00pm
in my office (EE, room 245)

Enjoy your homework

Friendly

Alex

EE 2720, Homework #3

Note: Please STAPLE your homework

Note: Problems 1–10 below ask you to prove theorems found in handout #5.

Problem 1: Prove theorem (T1'). You are not allowed to use the Principle of Duality. In other words don't tell me because (T1) is true so is (T1').

Problem 2: Repeat problem 1 but now for theorem (T2').

Problem 3: Repeat problem 1 but now for theorem (T3).

Problem 4: Repeat problem 1 but now for theorem (T3').

Problem 5: Repeat problem 1 but now for theorem (T4); (there is no dual of (T4) here anyways).

Problem 6: Repeat problem 1 but now for theorem (T5').

Problem 7: Prove theorem (T7) by using a truth table; (as explained in handout #5 this is the so called perfect induction method. See my note on page 14 of handout #5).

Problem 8: Prove theorem (T10'). You are not allowed to use the Principle of Duality and you are not allowed to use a truth table. You must use other theorems.

Problem 9: Prove theorem (T11'). You are not allowed to use the Principle of Duality and you are not allowed to use a truth table. Hint: Use the theorem that states $(X+Y)\cdot(X'+Z)=X\cdot Z+X'\cdot Y$. This theorem was stated and proved in handout#6; (the proof is not that difficult).

Problem 10: Prove theorem (T13') using the finite induction technique. Look on page 6 of handout #5 to see what the finite induction technique is.

Problem 11: Prove the theorem that states $(X+Y)\cdot(X'+Z)=X\cdot Z+X'\cdot Y$. You are not allowed to use a truth table. You must use the theorems provided in handout#5. Of course, you must provide a different proof than the one I provided in handout#6. ; (proof is really easy).