

Homework Assignment IV

Reading Assignment: Kuc Chapter 4. Kerns-Irwin Chapter 13. Lecture Notes.

1. Use Boolean algebra to prove the following identity

$$ABC + ABC\bar{C} + A\bar{B}\bar{C} + A\bar{B}C = A.$$

Construct a truth table to confirm your algebra.

2. Construct truth tables to prove the following equalities

(a) $A(B + C) = AB + AC$

(b) $ABC = \overline{\overline{A} + \overline{B} + \overline{C}}$

(c) $\overline{A + B + C} = \overline{A} \overline{B} \overline{C}$

3. Design a CMOS 2-input AND gate and a CMOS 2-input OR gate.

Due date: **October 14** in class