

ECE130**In-Class Exercise 2** (Simplification with Boolean algebra)

1 Simplify $Z(A,B,C) = A \cdot B \cdot \bar{C} + \bar{A} \cdot B + \bar{A} \cdot \bar{B} \cdot C$ with Boolean algebra and indicate which theorems are used.

2 Complement the following, using DeMorgan's theorem to produce a product of sums expression.

$$Z(A,B,C) = A \cdot B \cdot \bar{C} + A \cdot C$$

3 Obtain simplified logic expression for the majority voting function.

A	B	C	F
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

4 Synthesis of a combinational circuit: design a turn signal circuit.
(From page 3 of Dr. Eccles' book)

L	R	F	LT	RT
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

LT =

RT =