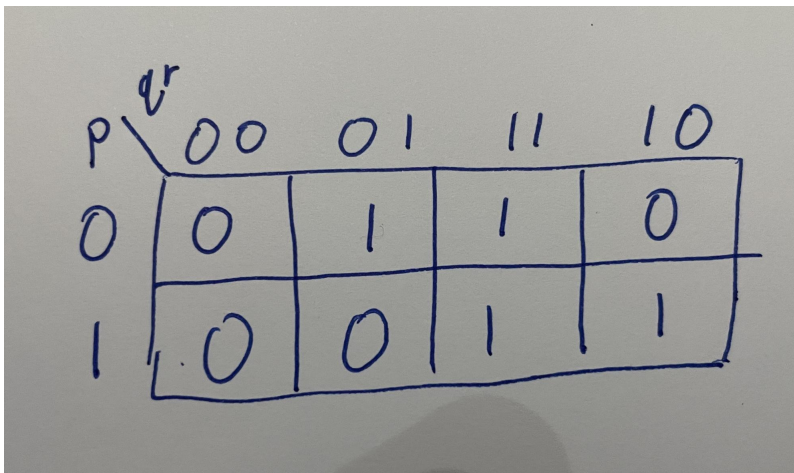


# ECE M16 Homework 2

Lawrence Liu

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## HW1 Problem 4 part b



A handwritten truth table for a 2-input function. The inputs are labeled  $p$  and  $q$ . The outputs are labeled 0 and 1. The table is a 2x4 grid with columns for  $00$ ,  $01$ ,  $11$ , and  $10$ . The rows are for  $0$  and  $1$ .

$p \backslash q$	$00$	$01$	$11$	$10$
$0$	$0$	$1$	$1$	$0$
$1$	$0$	$0$	$1$	$1$

## HW1 Problem 7

(a)

Month	m3	m2	m1	m0	output
1	0	0	0	1	1
2	0	0	1	0	0
3	0	0	1	1	1
4	0	1	0	0	0
5	0	1	0	1	1
6	0	1	1	0	0
7	0	1	1	1	1
8	1	0	0	0	1
9	1	0	0	1	0
10	1	0	1	0	1
11	1	0	1	1	0
12	1	1	0	0	1

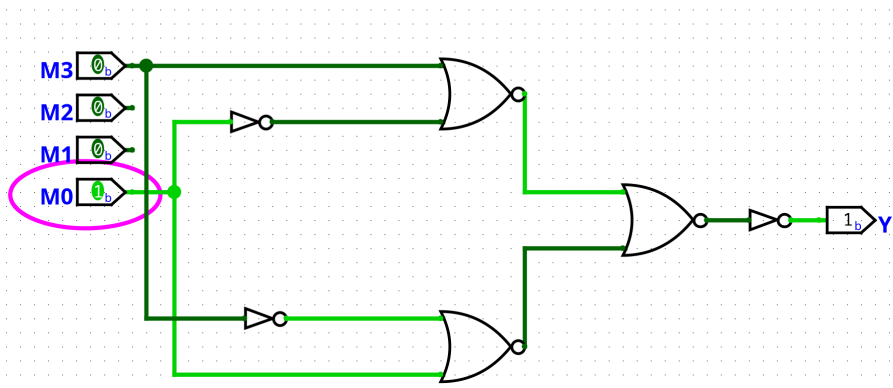
(b)

$m_1 m_0$	$m_3 m_2$	00	01	11	10
00	1	0	1	1	0
01	1	1	1	0	0
11	1	1	1	0	1
10	0	0			

Therefore the equation is:

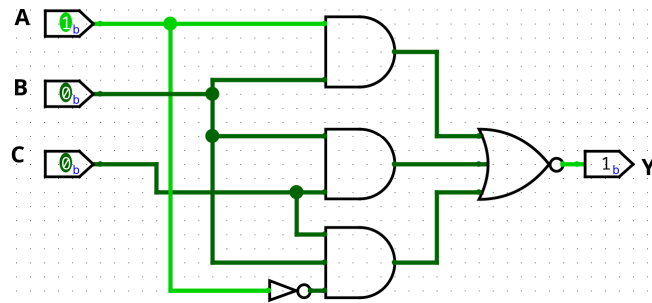
$$m_0 \cdot \overline{m_3} + \overline{m_0} \cdot m_3$$

(c)



## HW 2 Problem 1

There would be a static 0 hazard between  $b = 1, c = 1, a = 0$  and  $b = 1, c = 1, a = 1$ . We can fix it with the following circuit. We can fix this by adding an And gate between  $b$  and  $c$  before the nor, so the resulting function would



look like this