SPEC 2210 Lab 3 - Exercise 1 : PART 1A
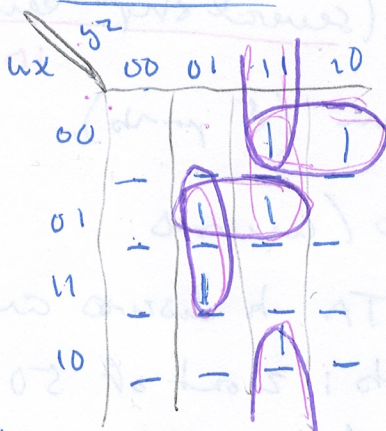
- Four inputs, 2 outputs
- let A3, A2, A1, A0 be w, x, y, z respectively

P { true, number is PRIME
  { false, if not PRIME

D { true, # divisible by 3 or 4
  { false, ''

A3	A2	A1	A0	P	D
w	x	y	z	P	D
0	0	0	0	0	0
0	0	0	1	0	0
0	0	1	0	1	0
0	0	1	1	1	1
0	1	0	0	0	1
0	1	0	1	1	0
0	1	1	0	0	1
0	1	1	1	1	0
1	0	0	0	0	1
1	0	0	1	0	1
1	0	1	0	0	0
1	0	1	1	1	0
1	1	0	0	0	1
1	1	0	1	1	0
1	1	1	0	0	0
1	1	1	1	0	1

Function P

$$P(w, x, y, z) = x'yz + w'x'y + w'xz + xy'z$$

Function D
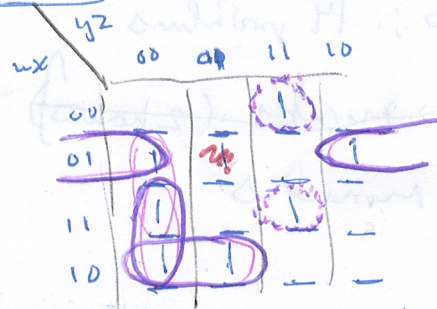
$$D(w, x, y, z) = w'xz + wx'y' + wy'z' + w'x'yz + wxyz$$

4 2-term implicants
↳ 4 3-terms
using SoP:

using PoS:
- 2 terms
- 4 3-terms

Function P Program

A3 w [0]
A2 x [0]
A1 y [0]
A0 z [0]

P(A3, A2, A1, A0)
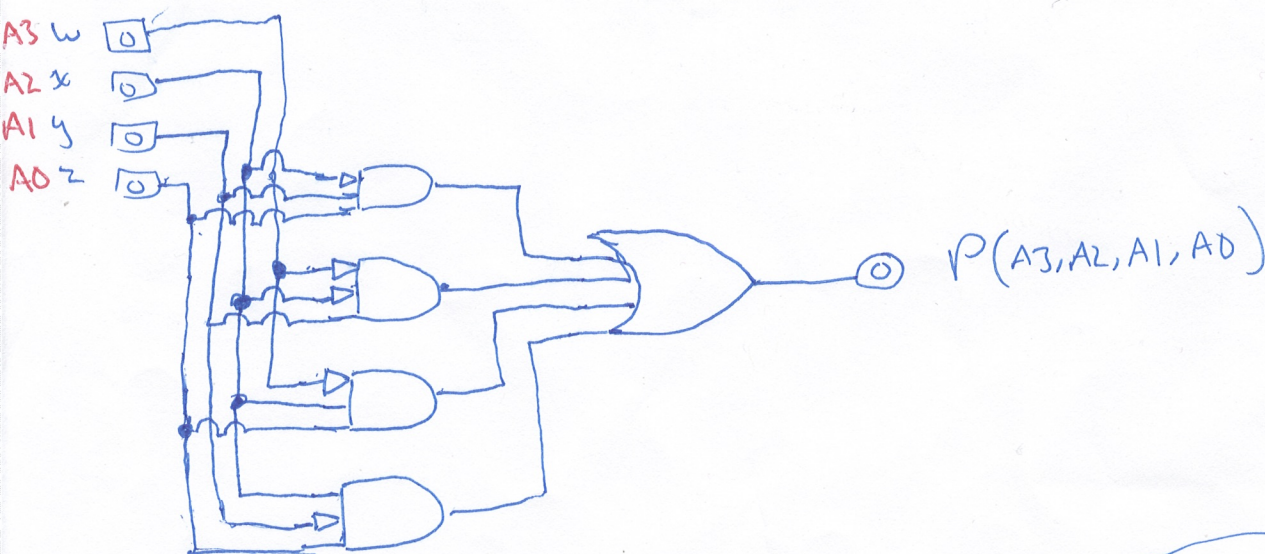
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Function D diagram

A3 w
A2 x
A1 y
A0 z

$D(A3, A2, A1, A0)$

Main Diagram

A3
A2
A1
A0

FP

FD

P

D
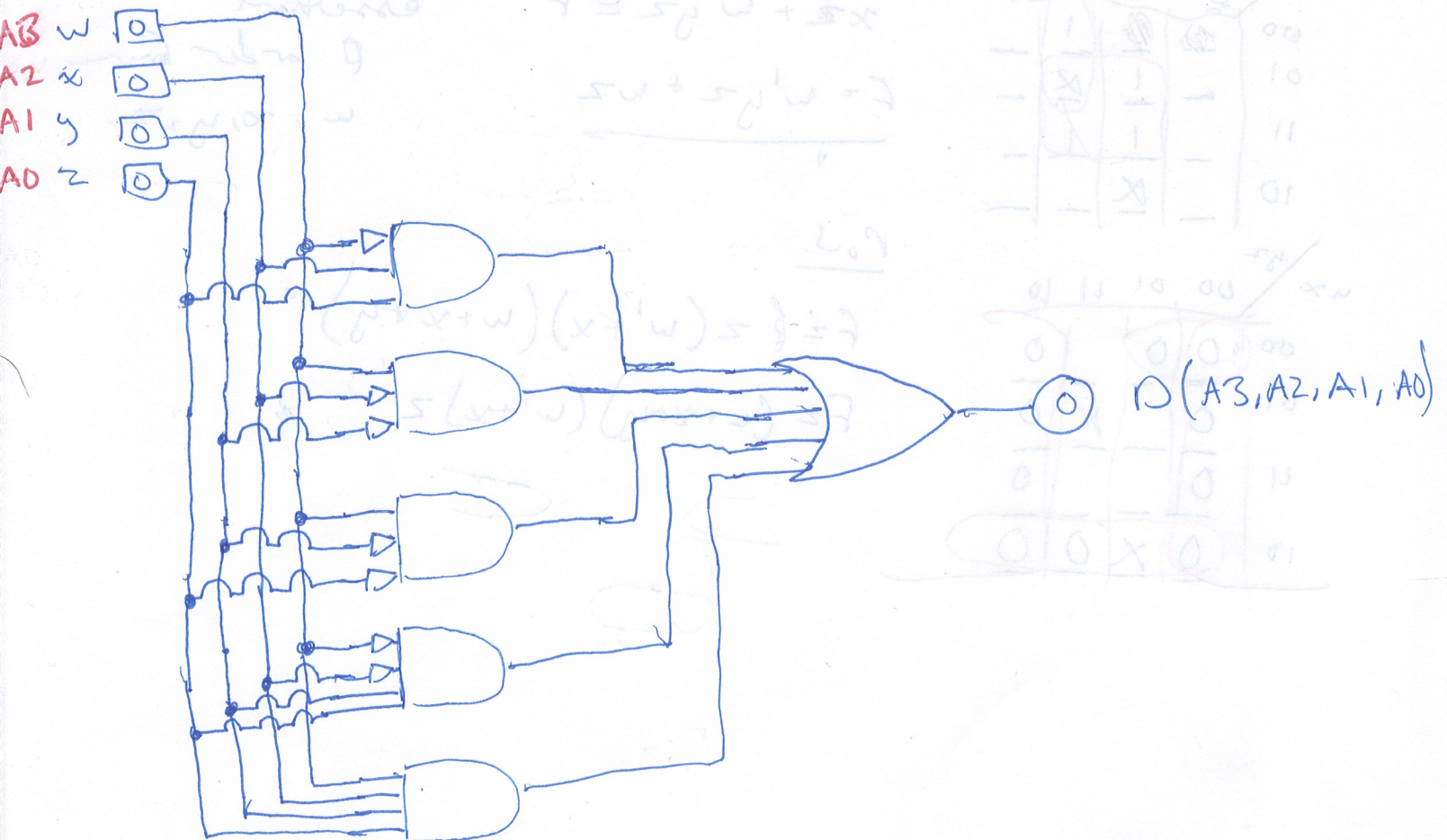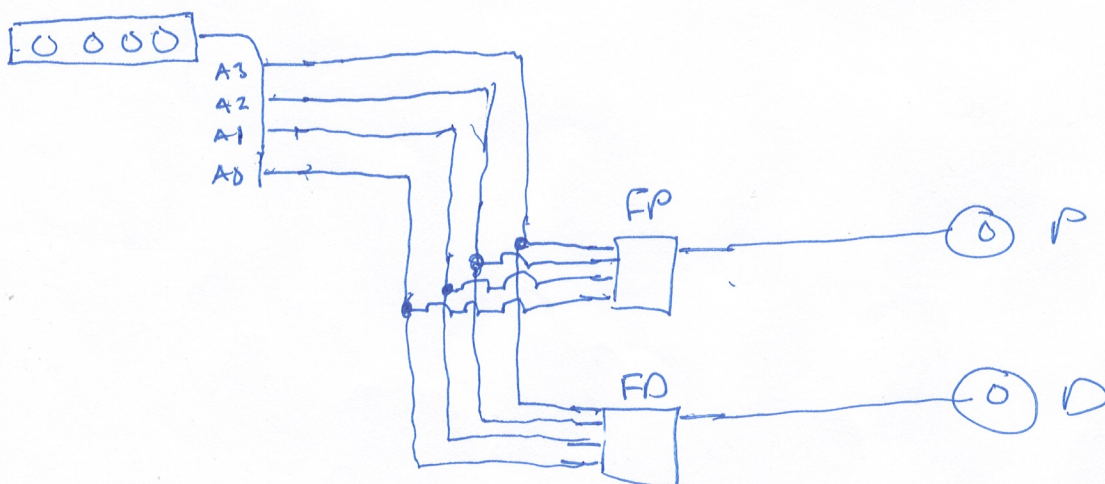
Counting the # of gates

- 3-pin input AND: 7
- 4-input AND: 2
- 4-input OR: 1
- 5-input OR: 1