数字电路与数字系统

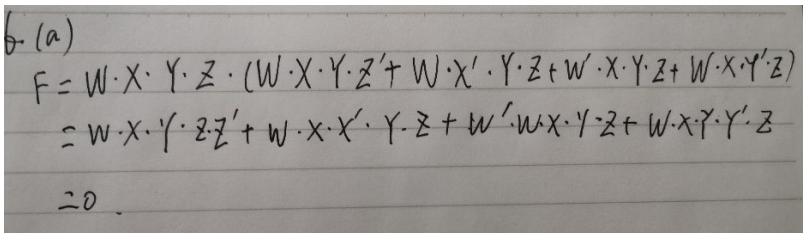
第四章作业

姓名：

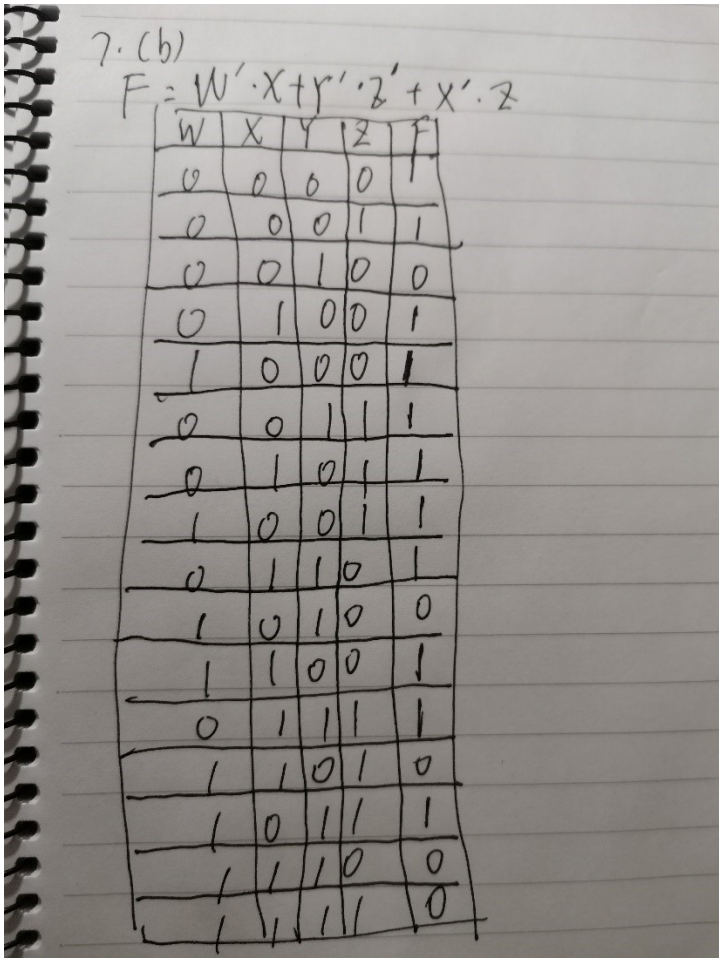
学号：

邮箱：

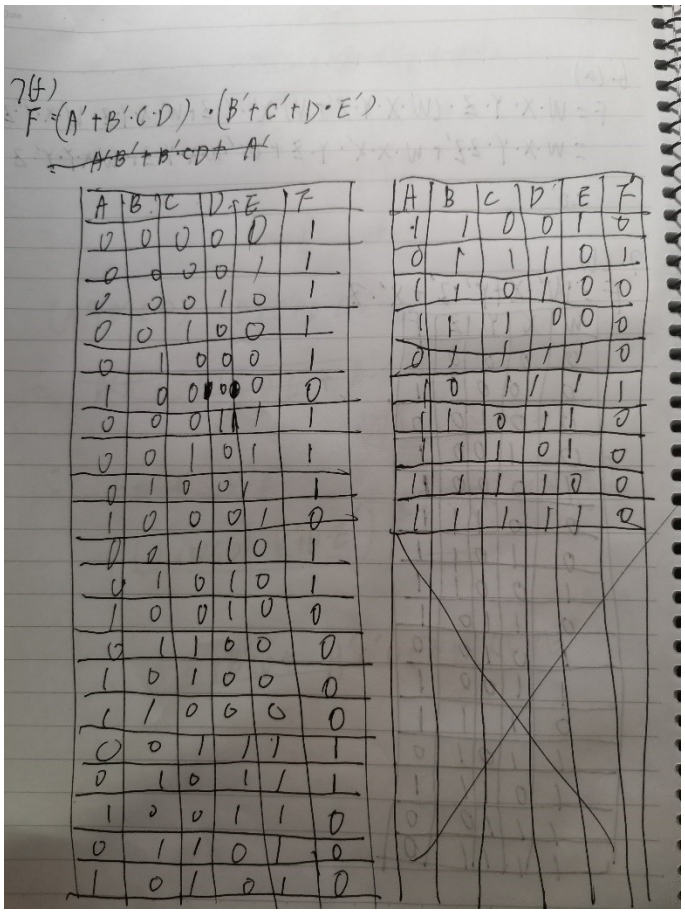
6(a).


6. (a)
F = W·X·Y·Z·(W·X·Y·Z' + W·X'·Y·Z + W'·X·Y·Z + W·X·Y'·Z)
= W·X·Y·Z·Z' + W·X·X'·Y·Z + W'·W·X·Y·Z + W·X·Y·Y'·Z
= 0.

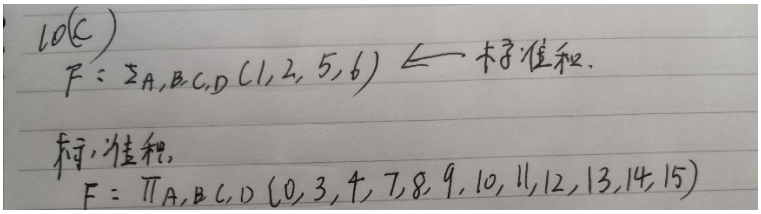
7(b).


7. (b)
F = W'·X + Y'·Z' + X'·Z
W X Y Z F
0 0 0 0 1
0 0 0 1 1
0 0 1 0 0
0 1 0 0 1
1 0 0 0 1
0 0 1 1 1
0 1 0 1 1
1 0 0 1 1
0 1 1 0 1
1 0 1 0 0
1 1 0 0 1
0 1 1 1 1
1 1 0 1 0
1 0 1 1 1
1 1 1 0 0
1 1 1 1 0

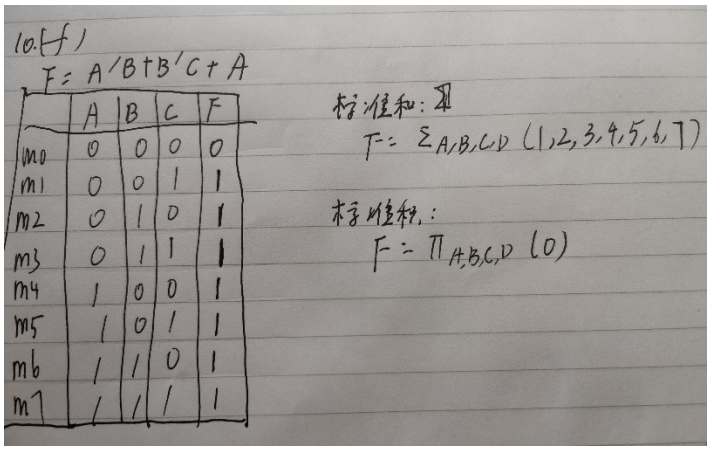
7(f).


7(f)
F=(A'+B'·C·D)·(B'+C'+D·E')
A B C D E F

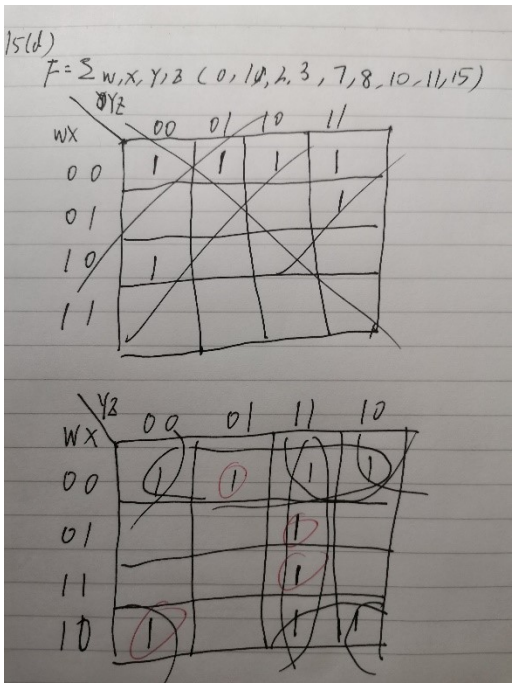
10(c).


10(c)
F = Σ A,B,C,D (1,2,5,6) ← 标准和.
标·准积.
F = Π A,B,C,D (0,3,4,7,8,9,10,11,12,13,14,15)

10(f).

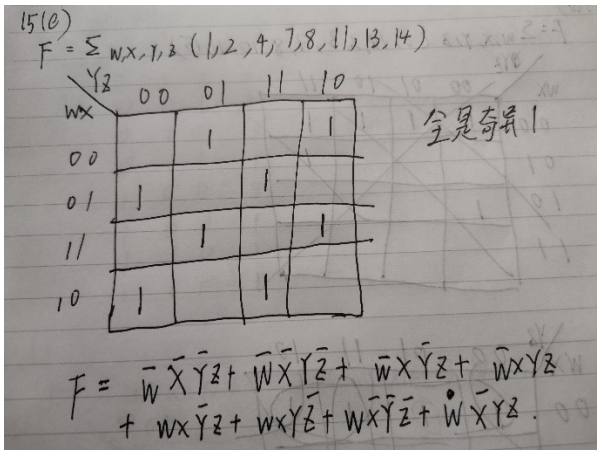

10.(f)
F = A'B+B'C+A
A B C F
m0 0 0 0 0
m1 0 0 1 1
m2 0 1 0 1
m3 0 1 1 1
m4 1 0 0 1
m5 1 0 1 1
m6 1 1 0 1
m7 1 1 1 1
标准和:
F = Σ A,B,C,D (1,2,3,4,5,6,7)
标准积:
F = Π A,B,C,D (0)

15(d).

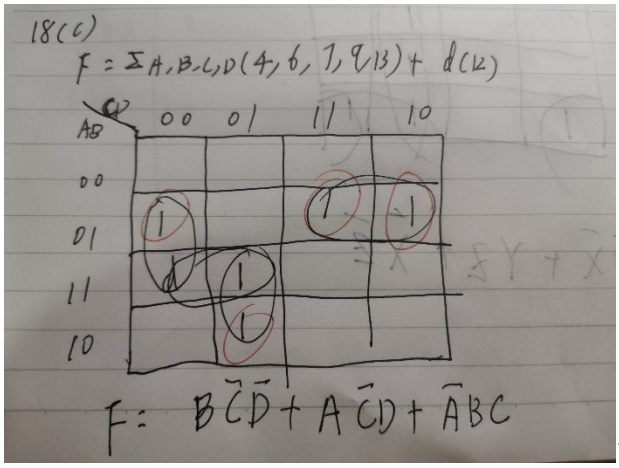


红笔圈的即为奇异 1，积之和为 F=W’X’+YZ+X’Z’

15(e).



18(c).



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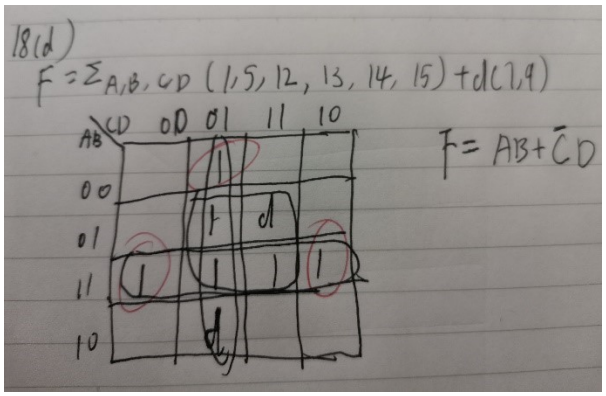
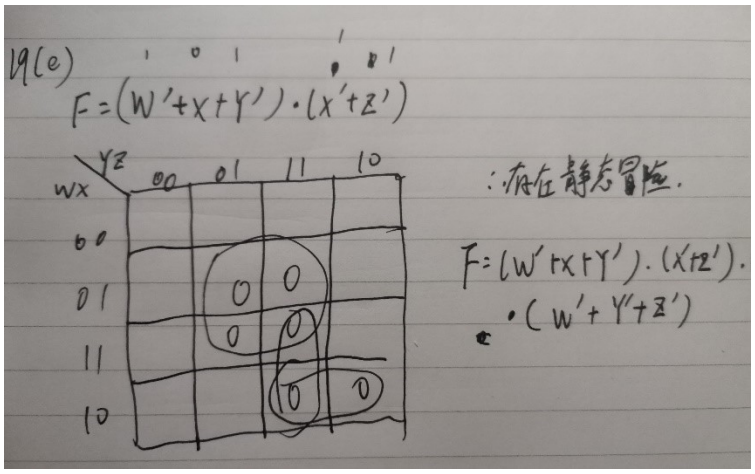
红笔圈的即为奇异 1

18(d).

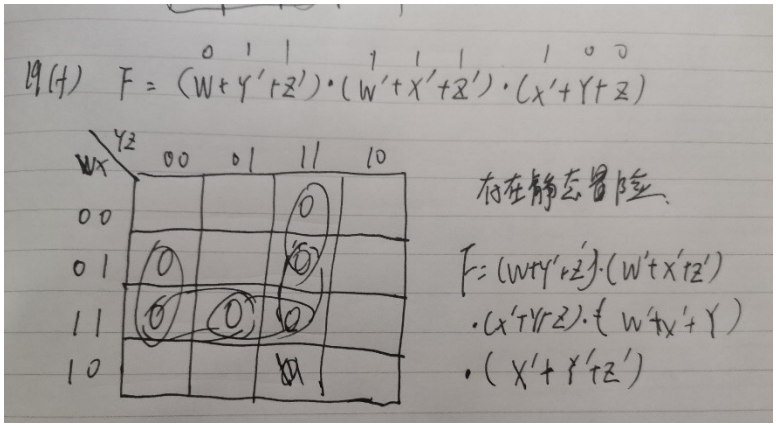


红笔圈的即为奇异 1

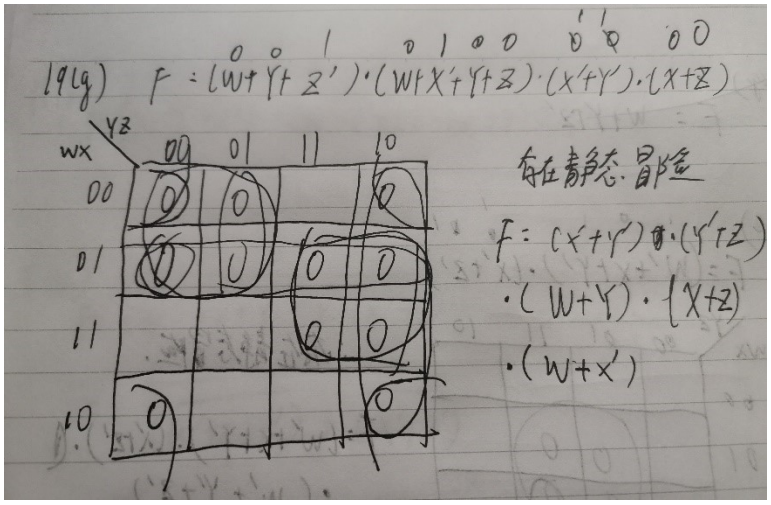
19(e).



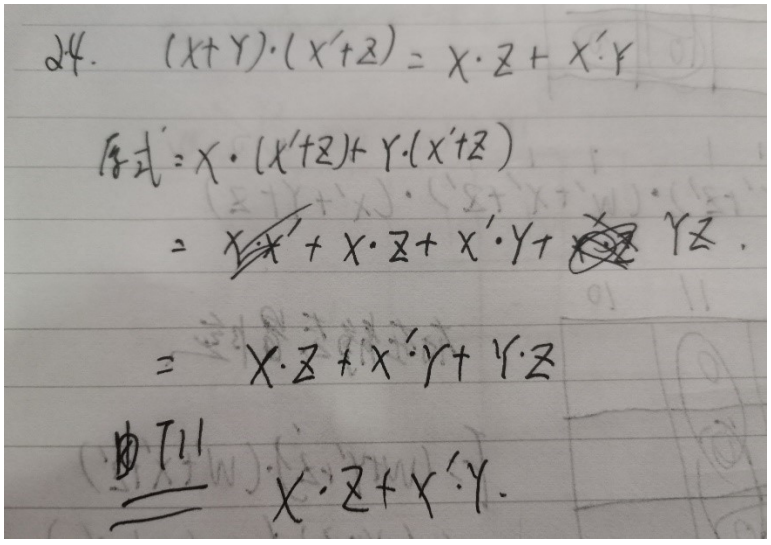
19(f).


19(f) F = (W+Y'+Z')·(W'+X'+Z')·(X'+Y+Z)
WX \ YZ
00 01 11 10
存在静态冒险.
F=(W+Y'+Z')·(W'+X'+Z')
·(X'+Y+Z)·(W+X'+Y)
·(X'+Y'+Z')

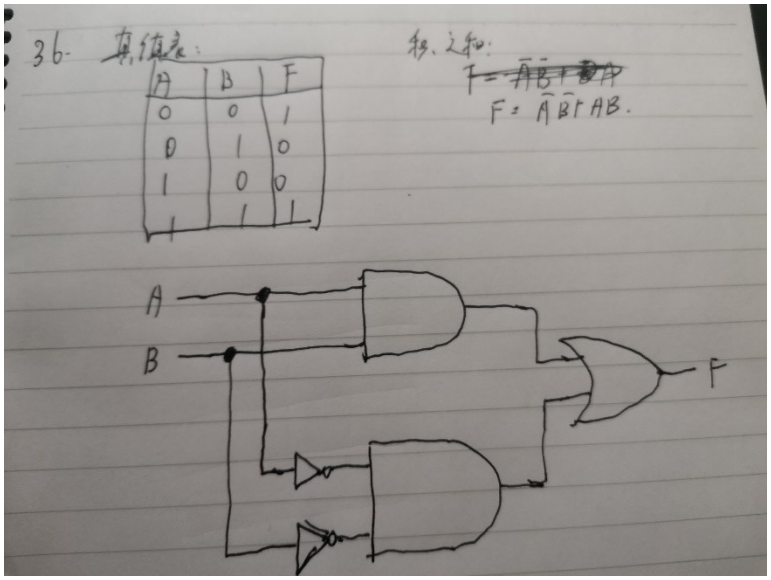
19(g).


19(g) F = (W+Y+Z')·(W+X'+Y+Z)·(X'+Y')·(X+Z)
WX \ YZ
00 01 11 10
存在静态冒险
F=(X+Y')·(Y'+Z)
·(W+Y)·(X+Z)
·(W+X')

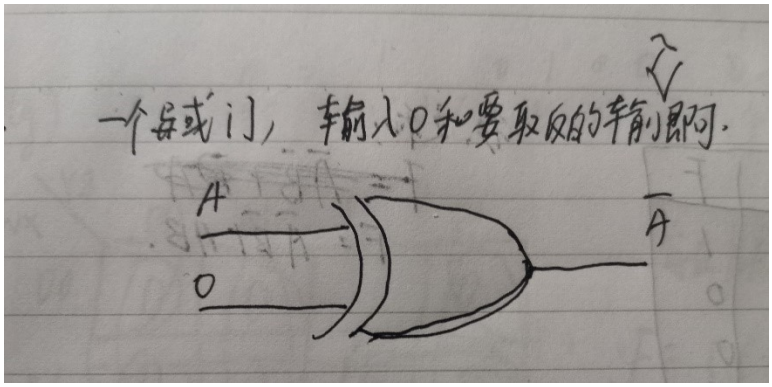
24.


24. (X+Y)·(X'+Z) = X·Z + X'·Y
原式 = X·(X'+Z)+Y·(X'+Z)
= X·X' + X·Z + X'·Y + Y·Z
= X·Z + X'·Y + Y·Z
由Ⅲ X·Z + X'·Y.

36.



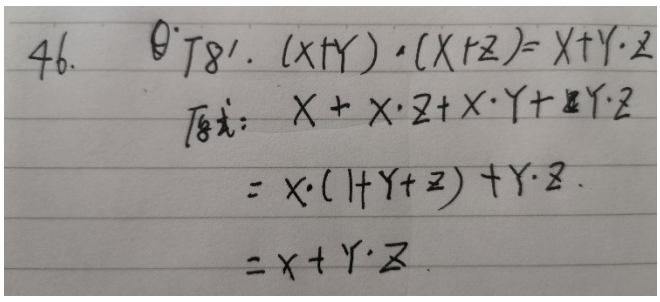
38.



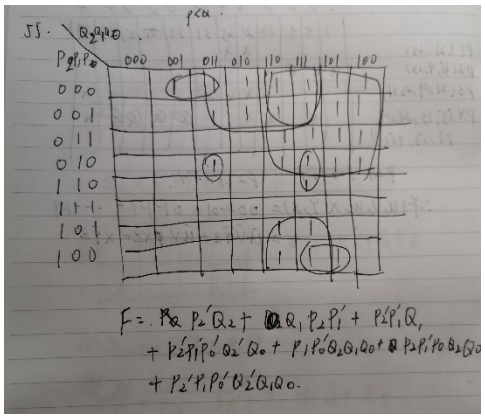
45.（？？？不会）

有 XY、XZ、YZ、XYZ 四种输入，所以有 2^4=16 种逻辑函数

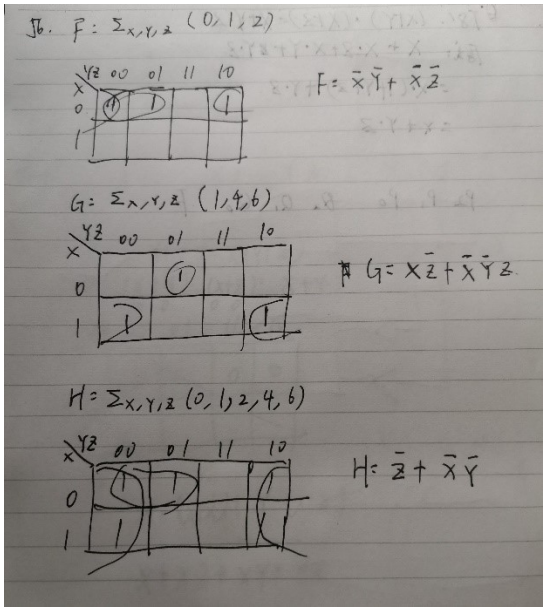
46.



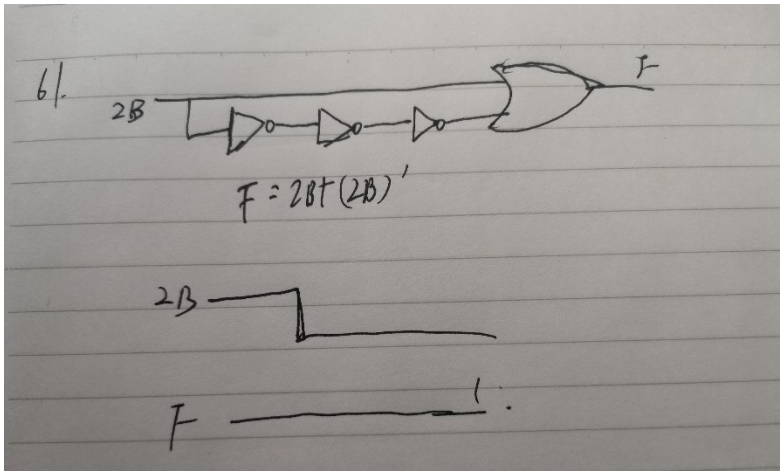
55.


55.
000 001 011 010 110 111 101 100
000
001
011
010
110
111
101
100

56.

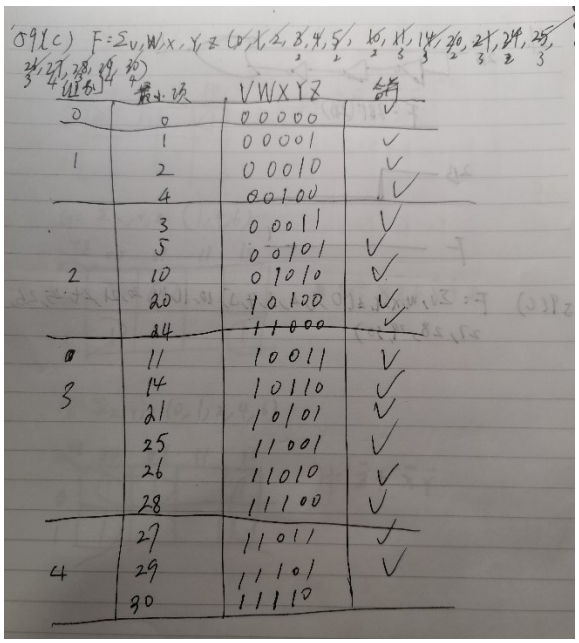

56.
F = Σx,y,z (0,1,2)
yz 00 01 11 10
x
0
1
F = x̄ȳ + x̄z̄
G = Σx,y,z (1,4,6)
G = xz̄ + x̄ȳz
H = Σx,y,z (0,1,2,4,6)
H = z̄ + x̄ȳ

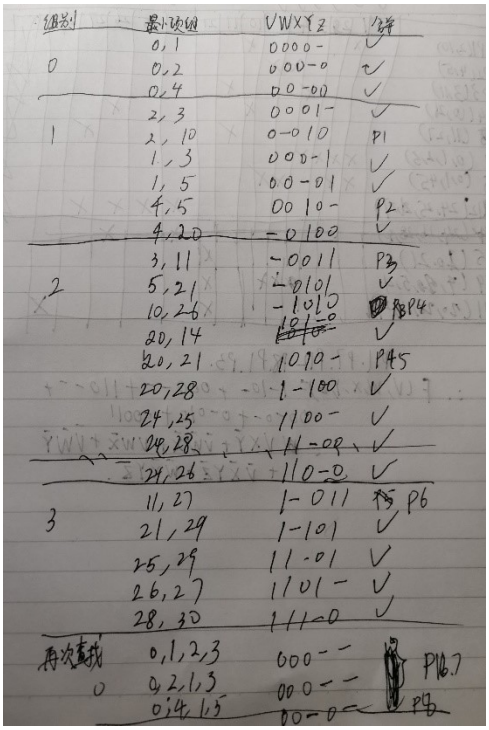
61.

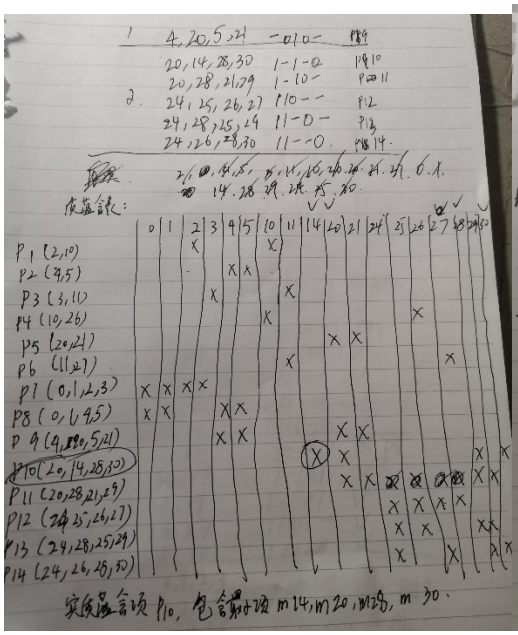

61.
2B
F
F = 2B + (2B)'
2B
F
1

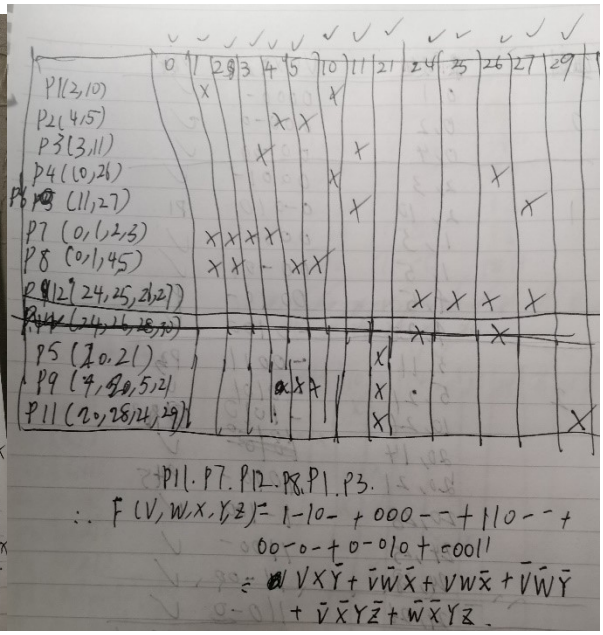
用 QM 方法化简 59(c)和 60(a)：

59(c)









60 (a)