Homework #2

- Represent the decimal number 6,514 in (a) BCD, (b) excess-3 code, (c) 2421 code, and (d) a 6311 code.
- Write the expression "George B." in ASCII, using an eight-bit code. Include the period and the space. Treat the leftmost bit of each character as a parity bit. Each eight-bit code should have odd parity. (George Boole was a 19th-century mathematician. Boolean algebra, introduced in the next chapter, bears his name.)
- Demonstrate the validity of the following identities by means of truth tables:
 - (a) DeMorgan's theorem for three variables: (x + y + z)' = x'y'z' and (xyz)' =x' + y' + z'
- Simplify the following Boolean expressions to a minimum number of literals:

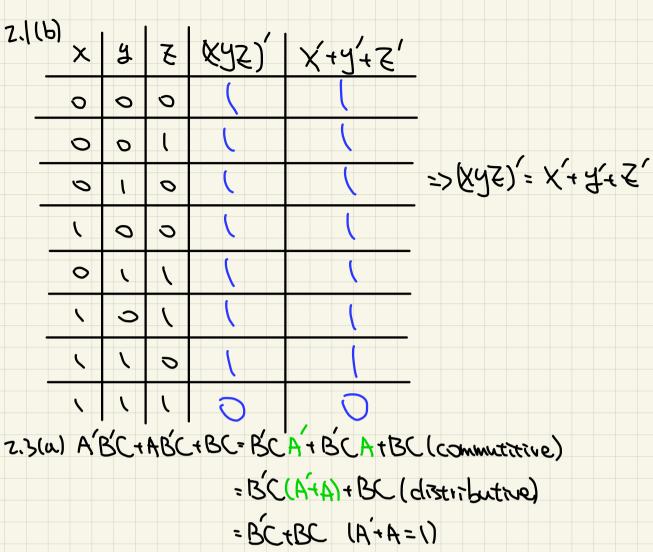
 (1) A'B'C + AB'C + BC(b) x'y'z' + y'z

Find the complement of the following expressions:

$$(a)^* x'y' + xy$$
 $(b) ac + ab' + a'bc'$

2421碼是一種有權碼,權值由高到低分別為2、4、2、1,特點是大於等於5的4位元二進位數中最高位為1,小於5的最高位為0。如5的2421碼表

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2.9. (a) (x'y'+xy)'
=((x'y')')(xy)' (DeMorgan's Thm)
=(x+y)(x'+y') (DeMorgan's Thm)

(b) (ac+ab'+a'b(')'x
=((ac)')((ab'))((a'bc')') (DeMorgan's Thm)
=(D'+c')(a'+b)(a+b+c) (DeMorgan's Thm)
x

a @ bc'