Karnaugh Maps

For simplifying 3-variable functions
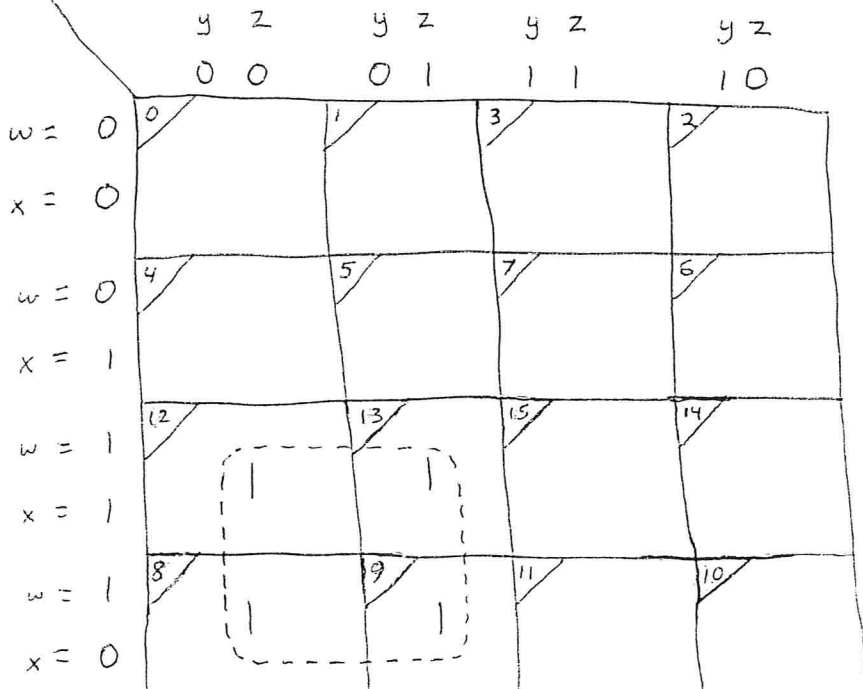

ex. Suppose we have $\Sigma(5,7)$ shown above.

$\left.\begin{array}{l} 5 = 101 \\ 7 = 111 \end{array}\right\}$ what do they have in common?
$x = 1$ and $z = 1$, so the term is xz.

For simplifying 4-variable functions
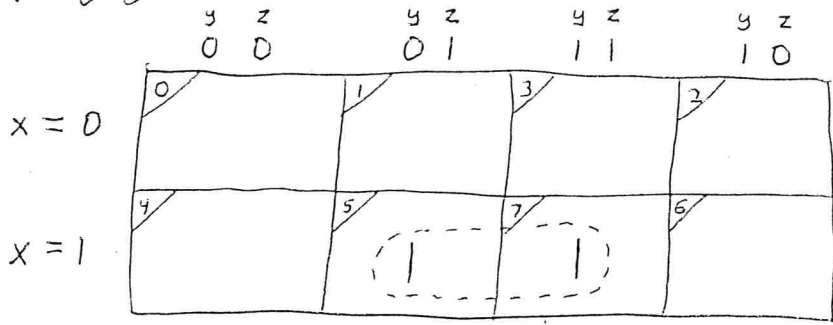
binary translation

0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
10	1010
11	1011
12	1100
13	1101
14	1110
15	1111

ex. Suppose we have $\Sigma(8,9,12,13)$

$\left.\begin{array}{l} 8 = 1000 \\ 9 = 1001 \\ 12 = 1100 \\ 13 = 1101 \end{array}\right\}$ what do these have in common?
$w = 1$ and $y = 0$, so the term is wy'.

(Note that in general there may be several terms to examine.)