

第一題

		signed magnitude	signed-1's complement	signed-2's complement
(a)	0011	1011	1100	1101
(b)	01010011	11010011	10101100	10101101
(c)	11010011	01010011	00101100	00101101
(d)	00000000	10000000	11111111	00000000

第二題

(a)

	signed-1's complement	signed-2's complement
X = 00110110	11001001	11001010
Y = 00010011	11101100	11101101

	X+Y	X-Y	Y-X	-X-Y
signed-1's complement	01001001	00100011	11011100	10110110
signed-2's complement	01001001	00100011	11011101	10110111

計算過程:

1's	$\begin{array}{r} x+y \\ 00110110 \\ +) 00010011 \\ \hline 01001001 \end{array}$	$\begin{array}{r} x-y \\ 00110110 \\ +) 11101100 \\ \hline 10010010 \\ \hline 00100011 \end{array}$
2's	$\begin{array}{r} x+y \\ 00110110 \\ +) 00010011 \\ \hline 01001001 \end{array}$	$\begin{array}{r} x-y \\ 00110110 \\ +) 11101101 \\ \hline 10010011 \end{array}$
	$\begin{array}{r} y-x \\ 00010011 \\ +) 11001001 \\ \hline 11011100 \end{array}$	$\begin{array}{r} -x-y \\ 11001001 \\ +) 11101100 \\ \hline 10110110 \end{array}$
	$\begin{array}{r} y-x \\ 00010011 \\ +) 11001010 \\ \hline 11011101 \end{array}$	$\begin{array}{r} -x-y \\ 11001010 \\ +) 11101101 \\ \hline 10110111 \end{array}$

(b)

所記錄的數字超過電腦規劃的容量所能夠紀錄的極限。

8bits 的範圍是-127~128，所以計算 $120+60$ 的時候就會產生溢位的狀況。