

Example 1

Add two numbers, discard final carry bit

$$\begin{array}{r}
 111111 \\
 00001111 \\
 1111010 \\
 \hline
 \cancel{100001001}
 \end{array}$$

$$\begin{array}{r}
 0001000 \\
 1101000 \\
 \hline
 1111000
 \end{array}$$

$$\begin{array}{r}
 8 \\
 -3 \\
 \hline
 5
 \end{array}
 =
 \begin{array}{r}
 8 \\
 +(-3) \\
 \hline
 5
 \end{array}
 \Rightarrow \text{2's complement of subtrahend} + 3$$

$$\text{Subtrahend} = 3$$

$$\text{2's complement of subtrahend} = -3 + 3$$

Ex. 1 : Perform the following Subtraction of the Signed numbers:

$$\begin{array}{r}
 00001000 \\
 - 00000011 \\
 \hline
 \end{array}$$

~~11111111~~ + 1 = 10000000
 11111111 + 1 = 10000000

$$\begin{array}{r}
 00001000 \\
 + 10000000 \\
 \hline
 10000001
 \end{array}$$

Example 2:

$$\begin{array}{r}
 00001100 \\
 11110111 \\
 \hline
 \end{array}$$

00001000 + 1 = 00001001
 00001001

$$\begin{array}{r}
 + 00001100 \\
 \hline
 00010101
 \end{array}$$

$$\begin{array}{r}
 1111 \\
 0111101 \\
 00111010 \\
 \hline
 10110111
 \end{array}$$

+
 overflow →
 → 183

$$2^7 = 128$$

if sum > $2^7 = 128$, overflow condition.