

①

a) $10110100 - 10010111$

Solution: $10110100 + (-10010111)$

1st cof of $10010111 = 01101000$

2nd cof of $10010111 = 01101001$

$$\begin{array}{r} 10110100 \\ 01101001^+ \\ \hline \end{array}$$

100011101

Ans: 00011101 #

b) $FEOFh - 12ABh$

Solution:

F = 1111		1 = 0001	2 nd cof →	1110
E = 1110		2 = 0010	→	1101
O = 0000		A = 1010	→	0101
F = 1111		B = 1011	→	0100

$$\begin{array}{r} 1111 \ 1110 \ 0000 \ 1111 \\ 1110 \ 1101 \ 0101 \ 0100^+ \\ \hline \end{array}$$

1110 1011 0110 0100

Ans: $1110 1011 0110 0100$ #

② a) 7FEEh

Unsigned

$$(7 \times 16^3) + (F \times 16^2) + (E \times 16^1) + (E \times 16^0)$$

$$(7 \times 16^3) + (15 \times 16^2) + (15 \times 16^1) + (14 \times 16^0)$$

$$= 32766 \#$$

Signed

$$7 = 0111 \rightarrow \text{msb} = 0 \text{ so the number is positive, the signed is same as unsigned.}$$

$$F = 1111$$

$$E = 1111$$

$$E = 1110$$

$$= 32766 \#$$

b) FEh

Unsigned

$$(F \times 16^1) + (E \times 16^0)$$

$$(15 \times 16^1) + (14 \times 16^0)$$

$$= 254 \#$$

Signed

$$F = 1111 \rightarrow \text{msb} = 1, \text{ the number is negative}$$

$$E = 1110$$

$$FEh = -N$$

$$1^{\text{st}} \text{ cof} = 0000 \ 0001$$

$$2^{\text{nd}} \text{ cof} = 0000 \ 0010$$

$$N = 02h = 2$$

$$-N = -2 \#$$

③ a.) Compute the offset

$$P = 4A37Bh$$

$$S = 40FFh$$

$$\phi = P - 10s$$

$$\phi = 4A37Bh - (40FFh)(10)$$

$$\phi = 4A37Bh - 40FF0h$$

$$\begin{array}{r} 4A37B \\ - 40FF0 \\ \hline 938Bh \# \end{array}$$

b) Compute the segment

$$P = 4A37Bh$$

$$\phi = 123Bh$$

$$S = \frac{P - \phi}{10}$$

$$S = \frac{4A37B - 123B}{10}$$

$$S = \frac{49140}{10} = 4914h \#$$

$$\begin{array}{r} 4A37B \\ - 123B \\ \hline 49140 \end{array}$$