

A Suppose that a byte contains the ASCII code of an upper case letter, what hex number should be added to it to convert it to lower case.

⇒ The ASCII value of upper case 'A' in hexa is 41.

For converting ASCII code of an upper case letter to lower case letter in decimal value 32_{10} should be added. So now we should convert 32_{10} in hexa decimal value.

$$\begin{array}{r} 16 \overline{) 32} \\ \underline{32} \\ 0 \\ 16 \overline{) 2} \\ \underline{2} \\ 0 \end{array}$$

So the hexa value $(20)_{16}$.

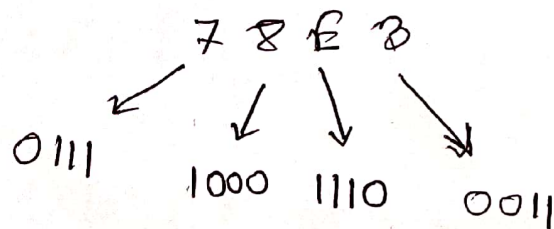
So lower case 'a' will be 61 in hexa decimal number.

For each of the following 16 bit signed numbers, tell whether it is positive or negative.

2.1 78EBH

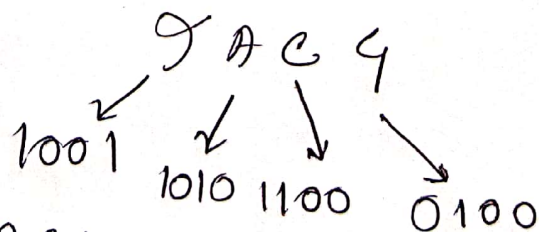
2.2, 9AC4H

⇒ ~~78~~ 78EBH



$78EBH = (0111\ 1000\ 1110\ 0011)_2$,
As the Most-significant bit (MSB) is 0 so this is positive.

⇒ 9AC4H.



~~94A~~ 9AC4H = $(1001\ 1010\ 1100\ 0100)_2$

As the MSB is 1 so this is negative signed.

Give the unsigned and signed decimal interpretations of each of the following 16 bit or 8 bit numbers.

3.1, 7FFE_h

3.2 7FF_h.

⇒ 7FFE_h

unsigned. $(7FFE)_{16} = (?)_{10}$.

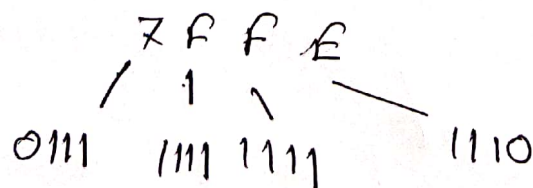
$$\Rightarrow 7 \times 16^3 + F \times 16^2 + F \times 16^1 + E \times 16^0$$

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

$$\Rightarrow 28672 + 3840 + 240 + 14$$

$$\Rightarrow (32766)_{10}$$

signed,



As the MSB is 0 so this positive number so the decimal value is $(32766)_{10}$.

$\Rightarrow 7FH$.

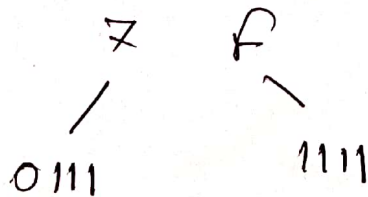
Unsigned

$$(7F)_{16} = (?)_{10}$$

$$\Rightarrow 7 \times 16^1 + 15 \times 16^0$$

$$\Rightarrow (127)_{10}$$

signed.



$$\text{So } (7F)_{16} = (01111111)_2$$

Here, MSB is 0 so this is positive.

and the decimal number of $7FH$

is 127.

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