

unsign. $\sqrt{1}$

$$a_1 a_2 a_3 a_4 a_5 a_6_2 = a_1 \cdot 2^5 + a_2 \cdot 2^4 + a_3 \cdot 2^3 + a_4 \cdot 2^2 + a_5 \cdot 2^1 + a_6 \cdot 2^0 \quad (1)$$

1) $0 = 000000$

2) $13 = 001101$

3) $24 = 011000$

4) $63 = 111111$

signed:

$$a_1 a_2 a_3 a_4 a_5 a_6_2 = -a_1 \cdot 2^5 + a_2 \cdot 2^4 + a_3 \cdot 2^3 + a_4 \cdot 2^2 + a_5 \cdot 2^1 + a_6 \cdot 2^0$$

1) $16 = 010000$

2) $-2 = 111110$

3) $31 = 011111$

4) $-32 = 100000$

$\sqrt{2}$

1) $000101 = 1 \cdot 2^0 + 1 \cdot 2^2 = 5$ (both cases)

2) $1001011 = 2^5 + 2^3 + 2^1 + 2^0 = 43$
 $= -2^5 + 2^5 + 2^1 + 2^0 = -21$

Formula in $\sqrt{1}$

3) $111111 = 63$
 $= -1$

4) $100000 = 32$
 $= -32$

$\sqrt{3}$

1) $7 = 00000007$

4) $126 = 0000007E$

2) $240 = 000000F0$

3) $171 = 000000AB$

N4

(2)

$$1) 0_{x3C} = 00111100$$

$$2) 0_{x7E} = 01111110$$

$$3) 0_{xFF} = 11111111$$

$$4) 0_{xA5} = 10100101$$

N5

$$1) -00111100 = 11000011 + 1 = 11000100$$

$$2) -01111110 = 10000001 + 1 = 10000010$$

$$3) -11111111 = 00000001$$

$$4) -10100101 = 01011010 + 1 = 01011011$$

N6

0_x DEACBEEF

Big-Endian: DE AC BE EF

Little-Endian: EF BE AC DE

N7

$$1) 7 = 0111 \quad 00000111 \quad \text{zero-ex.}$$

$$00000111 \quad \text{sign-ex.}$$

$$2) 15 = 1111 \quad 00001111 \quad \text{zero-ex}$$

$$11111111 \quad \text{sign-ex}$$

3) -16 can not be converted to 4-bit

$$4) -52 \quad 1011 \quad 00001011$$

$$11111011$$

N8

③

$$\begin{array}{r} 1) \quad 7 = 0111 \\ \quad \quad 9 = 1001 \\ \hline \end{array} \quad \begin{array}{r} \overset{1}{0} \overset{1}{1} \overset{1}{1} \overset{1}{1} \\ \overset{1}{1} 0 0 1 \\ \hline 10 \ 0 \ 0 \ 0 \end{array}$$

$$\begin{array}{r} 2) \quad 4 = 0100 \\ \quad \quad -5 = 1011 \\ \hline \end{array} \quad \begin{array}{r} 0100 \\ 1011 \\ 1111 \end{array}$$