

5b. Ob101011 (2's)

$$\begin{array}{r} - \quad \quad | \\ \hline 101010 \\ \text{flip} \quad 010101 \\ \hline 0b\ 010101 \end{array}$$

$$\begin{aligned} &= 1 \times 2^4 + 1 \times 2^2 + 1 \\ &= (16 + 4) + 1 \\ &= 21 \end{aligned}$$

$$0b101011 = -21$$

5c. Ob0011110 (2's)

is positive number

$$\begin{aligned} &1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 \\ &= 8 + 4 + 2 \end{aligned}$$

$$= 14,$$

6. 4 bit binary #.

a. unsigned #

Min value = 0

Max value = 15

b. signed #

Min value = -8

Max value = 7

8 bits unsigned #

min value = 0

Max value = 255

Signed #

Min value = -128

Max value = 127

16 bit, 8 bits.

unsigned #

Min = 0

Max = $2^x - 1$

Signed #

Min = -2^{x-1}

Max = $2^{x-1} - 1$

q. And mask