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Binary: an introduction

$$10_2 = 2_{10}$$

$$378 = 8 \times 10^0 + 7 \times 10^1 + 3 \times 10^2$$

$$10_2 = 0 \times 2^0 + 1 \times 2^1$$

$$\begin{aligned} 101101_2 &= 1 \times 2^0 + 0 \times 2^1 + 1 \times 2^2 + 1 \times 2^3 + 0 \times 2^4 + 1 \times 2^5 \\ &= 1 + 0 + 4 + 8 + 32 \\ &= 45 \end{aligned}$$

$$x = \sum_{i=0}^n a_i 2^i, \quad x \in \mathbb{Z}^+$$

$$\begin{array}{r} 011011 \\ 1110110 \end{array}$$

(big endian)
(little endian)

$$= 55.$$

$$011011 + 101101$$

$$\begin{array}{r} + 011011 \\ \quad 101101 \\ \hline 1100100 \end{array} \quad \left. \vphantom{\begin{array}{r} + 011011 \\ \quad 101101 \\ \hline 1100100 \end{array}} \right\} \rightarrow \text{unsigned binary.}$$

$$\begin{array}{r} 32.8 \\ 37.775 \end{array}$$

↑
Justify
on radix