Binary $2^{n-1} \ldots 2^3 \; 2^2 \; 2^1 \; 2^0$

Octal $8^{n-1} \ldots 8^3 \; 8^2 \; 8^1 \; 8^0$

weight structure

weight: $8^3 \; 8^2 \; 8^1 \; 8^0$

Digits: 2 3 7 4

Sum of weights

$= (2 \times 8^3) + (3 \times 8^2) + (7 \times 8^1) + (4 \times 8^0)$

$= (2 \times 512) + (3 \times 64) + (7 \times 8) + (4 \times 1)$

$= 1276_{10}$

$2374_8 = 1276_{10}$

a. $13_8 = 001 \; 011_2$

001 011

b. $7526_{(8)} = 111 \; 101 \; 010 \; 110_2$

111 101 010 110

a. $\underbrace{110}_{5}\ \underbrace{101}_{6}{}_2 = 56_8$

b. $\underbrace{11}_{3}\ \underbrace{010}_{2}\ \underbrace{000}_{0}\ \underbrace{100}_{4}{}_2 = 3204_8$