

Conversii

Conversia nr. întregi (părți întregi) prin împărțiri succesive

Calculule se efectuează în baza nouă (recomandăm să utilizăm dacă știm de la bază mai mare)

$$X_{(p)} = ?_{(2)} = r_n r_{n-1} \dots r_1 r_0 (2)$$

$$X_{(p)} : 2_{(p)} = r_0 (p) \text{ rest } r_1 (p)$$

$$r_0 (p) : 2_{(p)} = r_1 (p) \text{ rest } r_2 (p)$$

$$r_{n-1} (p) : 2_{(p)} = \bigcirc \text{ rest } r_n (p)$$

$$151 : 16 = 9 \text{ r } 7$$

$$9 : 16 = 0 \text{ r } 9$$

$$151_{(10)} = 97_{(16)}$$

$$347_{(10)} = 533_{(8)}$$

$$347 : 8 = 43$$

$$\begin{array}{r} 32 \\ \underline{27} \\ 27 \\ \underline{24} \\ 3 \end{array}$$

$$43 : 8 = 5 \text{ r } 3$$

$$40$$

$$5 : 8 = 0 \text{ r } 5$$

$$293_{(10)} = 101212_{(3)}$$

$$\begin{array}{r|l} 293 & 3 \\ \underline{27} & 97 \\ \hline = 28 & 96 \\ \underline{21} & 96 \\ \hline 2 & 1 \end{array} \quad \begin{array}{r|l} 3 & 3 \\ \underline{3} & 32 \\ \hline 30 & 3 \\ \underline{2} & 10 \\ \hline 9 & 3 \\ \hline 9 & 3 \\ \hline 6 & 3 \\ \hline 1 & 3 \\ \hline 0 & 3 \\ \hline 1 & 0 \end{array}$$

Conversia nr. zecimale (părți fracționare) prin înmulțiri succesive

Calculul se face în baza nouă (se recomandă să se utilizeze dacă se pornește de la o bază mai mare)

$$0, X_{(p)} = 0, ?_{(q)} = 0, y_{-1} y_{-2} y_{-3} \dots_{(q)}$$

$$0, X_{(p)} * 2_{(p)} = y_{-1}, F_{1(p)}$$

$$0, F_{1(p)} * 2_{(p)} = y_{-2}, F_{2(p)}$$

$$0, F_{2(p)} * 2_{(p)} = y_{-3}, F_{3(p)}$$

$$0, 152 \times 16 = 3,072$$

$$0, 152 \times 16 = 2,432$$

$$16 \cdot 0,072 \times 16 = 1,152$$

$$0,31_{(10)} = 0,15(05432)_{(6)}$$

$$0,31 \times 6 = 1,86$$

$$0,86 \times 6 = 5,16$$

$$0,16 \times 6 = 0,96$$

$$0,96 \times 6 = 5,76$$

$$0,76 \times 6 = 4,56$$

$$0,56 \times 6 = 3,36$$

$$0,36 \times 6 = 2,16$$

$$0,16$$

Cond. de oprire: $F_n = 0$

$F_n = F_k, k < n$

* s-a obținut nr. decimale (16-3)

$$0,192_{(10)} = 0,312_{(16)}$$

$$0,2_{(10)} = 0,1_{(5)}$$

$$0,2 \cdot 5 = 1$$

Substituția

Calcululele efectuate în baza destinate (recomandăm să utilizăm cardul de bază nouă mai mic)

$$a_n a_{n-1} \dots a_1 a_0, a_{-1} \dots a_{-m} (p) = a_n (p) \cdot p (p)^n + a_{n-1} (p) \cdot p (p)^{n-1} + \dots + a_0 (p) \cdot p (p)^0 + a_{-1} (p) \cdot p (p)^{-1} + \dots + a_{-m} (p) \cdot p (p)^{-m}$$

$$\begin{matrix} 4 & 3 & 2 & 1 & 0 & -1 & -2 \\ 1 & 2 & 3 & 1 & 2 & , & 0 & 1 \end{matrix} (4) = 1 \cdot 4^4 + 2 \cdot 4^3 + 3 \cdot 4^2 + 1 \cdot 4^1 + 2 \cdot 4^0 + 0 \cdot 4^{-1} + 1 \cdot 4^{-2} =$$

$$= 256 + 128 + 48 + 4 + 2 + 0 + \frac{1}{16} =$$

$$\begin{array}{r} 3 \\ 16 \\ \hline 16 \\ 96 \\ \hline 16 \\ 256 \end{array} = 438,0625 (10)$$

$$\begin{matrix} 2 & 1 & 0 & -1 \\ 9 & A & 3 & , & 5 \end{matrix} (16) = 9 \cdot 16^2 + 10 \cdot 16 + 3 + 5 \cdot 16^{-1}$$

$$= 9 \cdot 256 + 163 + \frac{3}{16}$$

$$= 2304 + 163 + \frac{3}{16}$$

$$= 2467,18 (10)$$

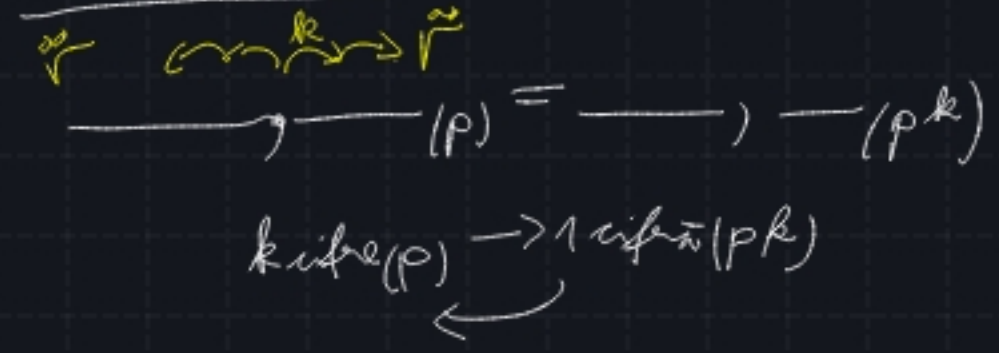
$$\begin{array}{r} 25:4 = 6 \text{ rest } 1 \\ \underline{24} \\ 1 \end{array}$$

$$3:16 = 0,18$$

$$\begin{array}{r} 30 \\ 16 \\ \hline 496 \\ 128 \end{array}$$

$$\begin{array}{r} 1 \quad 2 \\ 2 \quad 5 \quad 6 \\ 1 \quad 2 \quad 8 \\ \quad 4 \quad 8 \\ \quad \quad 4 \\ \quad \quad \quad 2 \\ \hline 438 \end{array}$$

Conversion



$$\underbrace{010111010011}_{2\ 7\ 2\ 3}, \underbrace{011011110011011}_{3\ 3\ 6\ 3\ 3}_{(2)} =$$

$$\underbrace{0001010110101110}_{1\ 5\ A\ E}, \underbrace{0110101100110111}_{3\ 5\ A\ B\ C, 2\ 5\ 4}_{(2)} =$$

$$7642310451, 31476257_{(8)} =$$

$$= 111110100010011001000100101001, 011001100111100101011001_{(2)} =$$

$$\underbrace{00011010100}_{1\ 4\ 9\ D\ 5}, \underbrace{001010011111010}_{2\ 9\ F\ 4}_{(2)} =$$

$$1A2F8, C23A_{(16)}$$

$$\underbrace{000110100010111000}_{3\ 2\ 1\ 3\ 7\ 0}, \underbrace{110000100011101}_{6\ 0\ 4\ 3\ 5}_{(2)} =$$

2	8
000	0
001	1
010	2
011	3
100	4
101	5
110	6
111	7

2	16
0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A
1011	B
1100	C
1101	D
1110	E
1111	F

Conversão utilizando base intermediária

$$\begin{array}{c} \text{---} 1 \text{---} (p) = \text{---} 1 \text{---} (2) \\ \text{mult.} \nearrow \quad \nwarrow * \\ \text{---} 1 \text{---} (10) \end{array}$$

$$\begin{array}{c} \text{---} 1 \text{---} (2) = \text{---} 1 \text{---} (10) \\ \text{rap.} \nearrow \quad \nwarrow \text{mult.} \\ \text{---} 1 \text{---} (8/16) \end{array}$$

$$\begin{array}{c} \text{---} 1 \text{---} (10) = \text{---} 1 \text{---} (2) \\ \text{rap.} \nearrow \quad \nwarrow * \\ \text{---} 1 \text{---} (8/16) \end{array}$$

$$233,14_{(5)} = \frac{1010}{11}_{(4)}$$

$$233,14_{(5)} = 2 \cdot 5^2 + 3 \cdot 5^1 + 3 \cdot 5^0 + 1 \cdot 5^{-1} + 4 \cdot 5^{-2}$$

$$= 50 + 15 + 3 + 0,2 + 0,16$$

$$= 68,36_{(10)}$$

$$68 : 4 = 17 \text{ R } 0$$

$$17 : 4 = 4 \text{ R } 1$$

$$4 : 4 = 1 \text{ R } 0$$

$$1 : 4 = 0 \text{ R } 1$$

$$0,36 \times 4 = 1,44$$

$$0,44 \times 4 = 1,76$$

$$\underline{010111010}, \underline{110110}_{(2)} =$$

$$\underline{2^2} \quad \underline{7^1} \quad \underline{2^0}, \quad \underline{6^{-1}} \quad \underline{6^{-2}}_{(8)} = 2 \cdot 8^2 + 7 \cdot 8^1 + 2 \cdot 8^0 + 6 \cdot 8^{-1} + 6 \cdot 8^{-2}$$

$$= 2 \cdot 64 + 56 + 2 + \frac{6}{8} + \frac{6}{64}$$

$$= 128 + 58 + \frac{8 \cdot 6 + 6}{64}$$

$$= 186,84 \dots (10)$$

$$\frac{48+6}{64} = \frac{54}{64}$$

$$54 : 64 = 0,84$$

$$\begin{array}{r} 540 \\ 512 \\ \hline 280 \\ 236 \end{array}$$