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Sem. 1 5% 10 nr. activ. $\geq$ [nr. med.]

ponderat $\dfrac{\text{nr. activ}}{[\text{nr. med.}]} * 10$

Operații aritmetice de bază

Adunarea

Ex.: $2057_{(10)} + 371_{(10)} = 2428_{(10)}$

$7+1=8,\ 8<10$

$5+7=12,\ 12\geq 10,\ 12-10=2$

$1+0+3=4,\ 4<10$

$0+2+0=2,\ 2<10$

$a_n a_{n-1} \dots a_1 a_0(p) +$

$b_m b_{m-1} \dots b_1 b_0(p)$

$c_k c_{k-1} \dots c_1 c_0(p)$

$i = \overline{0, \max(n,m)}$, $t_0 = 0$

$$c_i = \begin{cases} a_i + t_i + b_i, \text{ dacă } a_i + t_i + b_i < p,\ t_{i+1} = 0 \\ a_i + t_i + b_i - p, \text{ altfel},\ t_{i+1} = 1 \end{cases}$$

$k = \max(m,n) + 1^{(*)}$, $(*)$ dacă $t_{\max(n,m)+1} \neq 0$

$c_k = t_k$

$35721_{(8)} + 2315_{(8)} = 37236_{(8)}$

$7+3 = 10-8 = 2$

$1011011_{(2)} + 10110_{(2)} = 1000100_{(2)}$

$A3F_{(16)} + 2C_{(16)} = A6B_{(16)}$

$F+C = 15+12 = 27 > 16 \Rightarrow 27-16 = 11 = B_{(16)}$

$3+2 = 5+1 = 6$

Scăderea

Ex.: $2065_{(10)} - 384_{(10)} = 1681_{(10)}$

$5 \geq 4$, $5-4=1$

$6 < 8$, $10+6-8=8$

$-1+0 < 3$, $10-1+0-3=6$

$-1+2 \geq 0$, $-1+2=1$

$A \geq B$

$a_m a_{m-1} \dots a_1 a_0{}_{(p)} - b_m b_{m-1} \dots b_1 b_0{}_{(p)} = c_m c_{m-1} \dots c_1 c_0{}_{(p)}$

$i = 0, m$, $t_0 = 0$

$$c_i = \begin{cases} a_i + t_i - b_i, \text{ dacă } a_i + t_i \geq b_i, t_{i+1} = 0 \\ p + a_i + t_i - b_i, \text{altfel}, t_{i+1} = -1 \end{cases}$$

$23AB_{(16)} - 5DE_{(16)} = 1DCD_{(16)}$

A B C D E
10 11 12 13 14

$11+16-14=13$

$10-1-13+16=12$

$3+16-1-5=13$

$3\,4\,2_{(5)} - 1\,2\,3_{(5)} = 2\,1\,4_{(5)}$

$110100_{(2)} - 100011_{(2)} = 010001_{(2)}$

Înmulțirea cu o cifră

Ex.: $7042_{(10)} *$ (transport: +2, +1)

$3_{(10)}$

$21126_{(10)}$

$(2*3):10 = 0$ rest 6

$(4*3+0):10 = 1$ r 2

$(0*3+1):10 = 0$ r 1

$(7*3+0):10 = 2$ r 1

$a_n a_{n-1} \ldots a_1 a_{0(p)} *$

$b_{(p)}$

$c_{n+1} c_n c_{n-1} \ldots c_1 c_{0(p)}$

$i = \overline{0,n}$, $t_0 = 0$

$(a_i * b + t_i) : p = t_{i+1}$ rest c_i

$c_{n+1} = t_{n+1}$

$23BC_{(16)} *$

$3_{(16)}$

$6B34_{(16)}$

$36:16 = 2$ r 4

$(33+2):16 = 2$ r 3

A 10
B 11
C 12
D 13
E 14
F 15

$123_{(4)} *$ (transport: 1, 2)

$3_{(4)}$

$1101_{(4)}$

$5234_{(6)} *$

$3_{(6)}$

$25150_{(6)}$

$(3*4):6 = 2$ r 0

$(9+2):6 = 1$ r 5

$(6+1):6 = 1$ r 1

$(15+1):6 = 2$ r 5

Împărțirea cu o cifră

Ex.: $2507_{(10)} : 4_{(10)} = 0626_{(10)}$ rest $3_{(10)}$

$a_m a_{m-1} \dots a_1 a_{0(p)} : b_{(p)} = c_m c_{m-1} \dots c_1 c_{0(p)}$ rest $r_{(p)}$

$2 : 4 = 0$ rest 2

$i = \overline{m,0}$, $t_m = 0$

$(2*10+5) : 4 = 6$ r 1

$(t_i * p + a_i) : b = c_i$ rest t_{i-1}

$(1*10+0) : 4 = 2$ r 2

$r = t_{-1}$

$(2*10+7) : 4 = 6$ r 3

$4A3F_{(16)} : 2_{(16)} = 251F_{(16)}$ rest $1_{(16)}$

$4 : 2 = 2$ rest 0

$A : 2 = 5$ rest 0

$3 : 2 = 1$ rest 1

$17 : 2 = (15+16)_{(10)} : 2 = 15$ rest 1

$122_{(3)} : 2_{(3)} = 022_{(3)}$ rest $1_{(3)}$

$1 : 2 = 0$, r 1

$(1 \cdot 3 + 2) : 2 = 2$

$(1 \cdot 3 + 2) : 2 = 2$ r 1