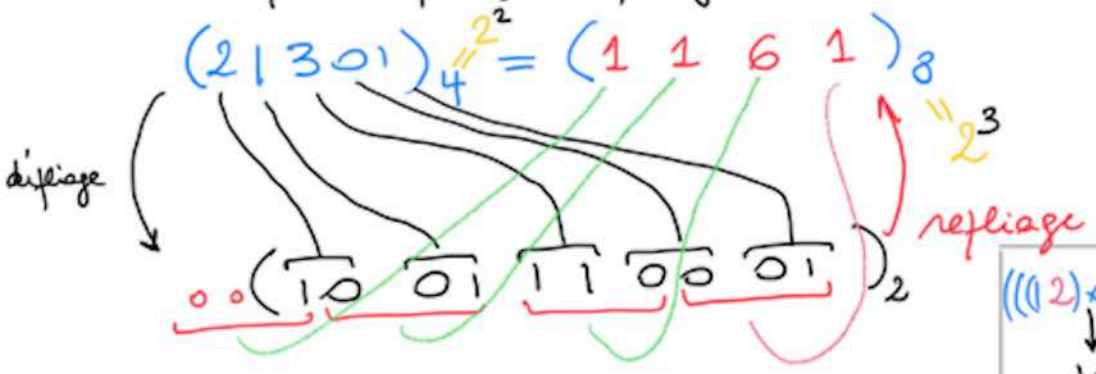
méthode par dépliage-repliage :



b = 2
s = 2 ⊓
t = 3 ⊓⊓⊓

méthode de Horner

(((1 2)×4+1)×4+3)×4+0)×4+1

10 → 11 → 44 → 47 → 234 → 1160 → 1161

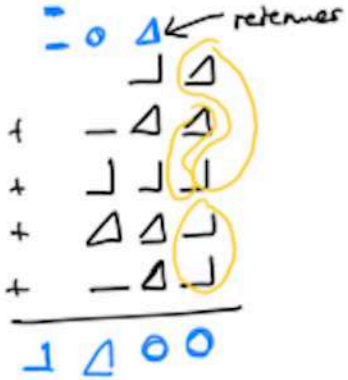
47 × 4 = 234
234 × 4 = 1160

---

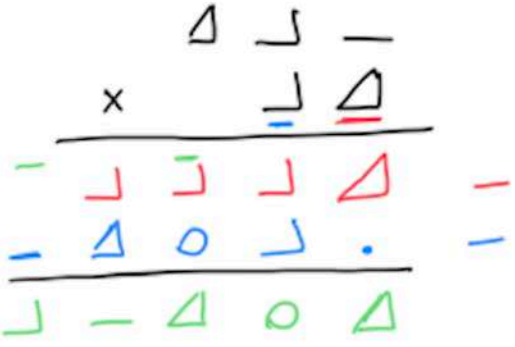
additions et multiplications chez les Shadoks

+	0	–	⌋	⊿
0	0	–	⌋	⊿
–	–	⌋	⊿	–0
⌋	⌋	⊿	–0	––
⊿	⊿	–0	––	–⌋

ga bu zo meu



×	0	–	⌋	⊿
0	0	0	0	0
–	0	–	⌋	⊿
⌋	0	⌋	–0	–⌋
⊿	0	⊿	–⌋	⌋–



Critères de divisibilité :

$$(a_p \dots a_0)_{10} \equiv 0 [2] \iff \sum_{i=0}^{p} a_i 10^i \equiv 0 [2]$$

$$\iff \sum_{i=1}^{p} a_i 10^i + a_0 \equiv 0 [2]$$

$$\iff \underbrace{\left(\sum_{i=1}^{p} a_i 10^{i-1}\right) \times 10}_{\text{or ce terme est } \equiv 0 [2]} + a_0 \equiv 0 [2]$$

$$\iff a_0 \equiv 0 [2].$$

$$(a_p \dots a_0)_{10} \equiv 0 [7] \iff \sum_{i=0}^{p} a_i 10^i \equiv 0 [7]$$

$$\iff 10 \times \left(\sum_{i=1}^{p} a_i 10^{i-1}\right) + a_0 \equiv 0 [7].$$

$$\iff 50 \times \left(\sum_{i=1}^{p} a_i 10^{i-1}\right) + 5a_0 \equiv 0 [7]$$

$$\iff \sum_{i=1}^{p} a_i 10^{i-1} + 5a_0 \equiv 0 [7].$$

$20712 \equiv 0 [7] \iff 2071 + 2 \times 5 \equiv 0 [7].$

$\iff 2081 \equiv 0 [7]$

$\iff 213 \equiv 0 [7]$

$\iff 36 \equiv 0 [7]$ mais 36 n'est pas dans la table de 7

donc 20712 n'est pas divisible par 7

Conversions pour des non entiers :

$(29,25)_{10} = (\quad ? \quad)_2$

Divisions successives :

29	2
1	14
0	7
1	3
1	1
1	0

$(29)_{10} = (11101)_2$

Multiplications successives :

$0,25 \times 2 = 0,50$
$0,50 \times 2 = 1,0$

$(0,25)_{10} = (0,01)_2$

$(29,25)_{10} = (11101,01)_2$

$(7,4)_{10} = (\quad ? \quad)_2$

Divisions successives :

7	2
1	3
1	1
1	0

$(7)_{10} = (111)_2$

Multiplications successives :

$0,4 \times 2 = 0,8$
$0,8 \times 2 = 1,6$
$0,6 \times 2 = 1,2$
$0,2 \times 2 = 0,4$
$0,4 \times 2 = 0,8$ déjà-vu !

période

$(0,4)_{10} = (0,\overline{0110})_2$
$= (0,(0110)^{\omega})_2$

$(7,4)_{10} = (111,(0110)^{\omega})_2$