

①  $5, 6, 7, 9$   $42 + ab = cd + 3$   
 $40 + ab = cd + 1 \Rightarrow$   
 $57 \quad 96$

$20 + 14 + 58 + 7 = 96 + 3$

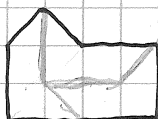
②  $23 - 20$   
 $|23 - 30| + 1 = 8 \text{ OK} \rightarrow 2330$

③ 5 dit : 4 a menti.

6 dit :

4  $\begin{cases} V \rightarrow 5 \text{ dit } F \rightarrow 6 \text{ dit } F \rightarrow 4 \text{ est OK (V)} \\ F \rightarrow 5 \text{ dit } V \end{cases}$

④



$3 \times 3$

⑤

~~2431~~

$2413 \rightarrow 2431 \rightarrow 2134 \rightarrow 4312 \rightarrow 4321$   
 $\rightarrow 2314 \rightarrow 4132 \rightarrow 4123 \rightarrow 4321$

4 op?

⑥ Séparer H et V.  $\rightarrow$  Médiane.

$23 - 3 = 20$

⑦

4	6	1
5	9	8
	7	

$(a+c+g+i) + 2(b+d+f+h) + 4e = 45$

$e = 9? \quad b+d+f+h + 3e = 45 - 45$

$\leq 26 + 27 = 53$

$\rightarrow S \leq 24$

(5, 6, 7, 8) imp.

Avec -2 : imp.

$S = 23?$   
non

4	2
5	9

$\rightarrow S \leq 21 \text{ imp.}$

4	7
5	8
2	9

$\frac{3}{6}$   
 $\frac{1}{6}$

$\rightarrow$

4	7	3
5	8	6
2	9	1

⑧ a, b, c, d petits

1, 2, 3, 7 OK

→ 4, 5, 6, 8, 10, 11

⑨ S = somme des gdes fig.

$$= \frac{1}{2} (4,8 + 8,6 + 7) = \frac{1}{2} 20,4 = 10,2$$

$$a + b + e + d = 4,8$$

$$c + d + a + f = 8,6$$

$$e + f + c + b = 7,0$$

↑ Entier    ↑ frac

$$b + d + f < 3$$

$$b + d = 0,8 \text{ ou } 1,8 \text{ ou } 2,8$$

$$d + f = 0,6 \text{ ou } 1,6 \text{ ou } 2,6$$

$$b + f = 0 \text{ ou } 1 \text{ ou } 2$$

$$b + d = 1,4 \text{ [5]}$$

$$b - f = 0,2 \text{ [1]}$$

$$b + f = 0 \text{ [1]}$$

$$\rightarrow b = 0,1 \text{ [1/2]}, d = 0,2 \text{ et } f = 0,4$$

b	d	f	a+e	a+c	c+e	c-a	2c	
0,1	0,7	0,9	4	7	6	2	9	imp.
0,6	0,2	0,4	4	8	6	2	10	

$$c = 5 \quad a = 3 \quad e = 1$$

$$\bigcirc = e + d = 1,2$$

$$\square = a + f = 3,4 \quad (\text{BR: } 3,4 \ 1,2 \ 5,6)$$

$$\triangle = c + b = 5,6$$

10)  $n_1, n_2, n_3$  : # droites // à  $D_i$

$$\left. \begin{array}{l} n_2 + n_3 + k = 20 \\ n_1 + n_3 + k = 14 \\ n_1 + n_2 + k = ? \end{array} \right\} n_2 - n_1 = 6 \rightarrow n_1 + n_2 \geq 8$$

$$n_1 = 1, n_2 = 7, k = 0, n_3 = 13$$

→ 8

11)  $a > b > c$ ,  $n$ : nb de jeux

$$n(a+b+c) = 45$$

$$a+b+c \geq 6$$

$$a+b+c \mid 45 \text{ et } n \mid 45 \rightarrow n = 3 \text{ ou } 5$$

• Si  $n=3$ ,  $a+b+c=15$

$$14 = a + ? + ?$$

$$\text{Si } 14 = 2a + c, \text{ imp.}$$

$$\text{Si } 14 = a + 2b, 20 = 2a + c, 11 = b + 2c \rightarrow b \geq 5 \text{ imp.}$$

$$\text{Si } 14 = a + b + c, 20 = 2a + b, 11 = b + 2c \rightarrow a - c = 6 = 3 \text{ imp.}$$

$$\text{ou } 20 = 2a + c, 11 = 2b + c \rightarrow a - b = 6 = 3 \text{ ''}$$

$$\text{Si } 14 = a + 2c$$

$$- 20 = 2a + b, 11 = 2b + c \rightarrow a - b = b - c + 3$$

$$a - c = 2(b - c) + 3 \quad (3, 4, 8) \text{ OK} \rightarrow c = 3$$

$$\text{m } (\cancel{2, 4, 9}) \quad (\cancel{1, 5},$$

$$- 20 = 2a + c, 11 = 3b \text{ non}$$

$$- 20 = a + 2b, 11 = a + b + c \rightarrow b - c = 9 \text{ imp.}$$

• Si  $n=5$ ,  $a+b+c=9$   $a < b < c$

$$\rightarrow a = 1 \text{ ou } 2$$

$$- \text{Si } a=2, b=3, c=4 \rightarrow 11 = 4 \times 2 + 3, 14 = 4 \times 3 + 2, 20 = 5 \times 4 \rightarrow \text{imp.}$$

$$\Rightarrow a=1, b+c=8$$

$$- \text{Si } b=2, c=6 \rightarrow 14 = 6 + 4 \times 2, 11 = 6 + \dots$$

$$- \text{Si } b=3, c=5:$$

$$20 = 3 \times 6 + 2 \times 1 \text{ imp.}$$

$$14 = 5 + 3 + 3 + \dots \text{ imp.}$$

1 sol<sup>0</sup>

$$\textcircled{15} \quad N: \prod (\alpha_i + 1)$$

$$\text{Cube: } \prod (3\alpha_i + 1)$$

$$\rightarrow \text{Cube} / N = 13$$
$$\prod (3\alpha_i + 1) / \prod (\alpha_i + 1) = 13$$

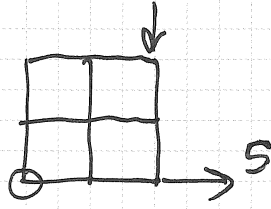
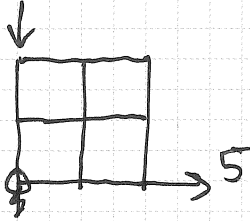
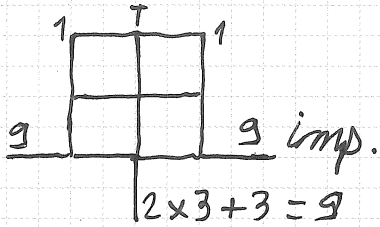
volume

$\alpha$	$(3\alpha+1)/(\alpha+1)$
1	4/2
2	<del>7</del> /3
3	<del>10</del> /4 = 5/2
4	13/5

$$\frac{13}{5} \times \frac{5}{2} \times 2 = 13$$

$$\alpha_i: 1, 3 \text{ et } 4 \rightarrow 2 \times 4 \times 5 = 40$$

14



$9 \times 5 + 9 \times 5 = 90$

$90 \times \dots$

