① 5

② 0034
→ 03.04 et 04.03
et 30.04 3

③ $2\times6\ \Diamond \rightarrow 12$
$6\ \triangleleft \rightarrow 3$
$4\times6\ \Delta \rightarrow 12$
$2\times6\ \Delta \rightarrow 3$
30
$(2+2+1)\times6 = 30$

④ $A+B+C = 87$
$C = 2B \quad A = B+7$
$\rightarrow 4B+7 = 87$
$B = 20$
$A = 27 \quad B = 20 \quad C = 40$

⑤ $10-6-2-2-4-1 \rightarrow 25$

⑥ 1T 2L 3C
4T 5L 6C
7T
10T
22T
$1+2+\dots+12 = 78$
$78+3 = 81$

⑦ $2025 = 3^4\times5^2\times1^2$
$12+10+2 = 24$

⑧ $9\times8\times1 = 72$
$7\times5\times2 = 70$
$6\times4\times3 = 72$
72

⑨ 4.1.6.2.4 → 41164
4.16.24 → 1446
2283
3 sol°

⑩ Symétrique.
$\widehat{BAD} = \widehat{ADB} = x$
ACD: $x+x+(x-18) = 180$
$\rightarrow x = 60+6 = 66$
$\widehat{B} = 180-2x = 180-132 = 48$

⑫
a
6
b

$a+b+6 \equiv 5\ [10]$
$a+b \equiv 9\ [10]$

1
6
8

imp

9	8	2
4	1	6
5	3	7

← 2, 8 et 9
← 3, 5 et 7
non

4
6
9 1 5

← 4, 7 et 8 ⇒ 2 1965
← 1, 9, 5

$915+236 = 1151$
874
2025

8	7	4
2	3	6
9	1	5

ok

$915+326 = 1241$
784
2025

7	8	4
3	2	6
9	1	5

ok

5
6
4

← 7 et 8
$9+2$ ~~8 ou 3~~

imp.

7
6
2

← 3 et 8 ou 9
← 1 et 4
~~6 ou 8~~ $5+8$

9	3	7
1	4	6
8	5	2

9	3	7
4	1	6
5	8	2

8
6
9 5 1

← 4 et 7
← 2 et 3
← 5 et 9

7	4	8
3	2	6
9	5	1

ok

7	4	8
		6
9	5	1

(13) $99 \mid \overline{GOLF}$

$GOLF = \overline{ab00} - \overline{ab} \quad b \neq 0$

$= a[b-1][9-a][10-b] \qquad c = b-1$

$= a\,c\,[9-a][9-c]$

Si $S+I < 10$:

$K = S+I \qquad 99 \times \overline{SI} = S\ldots$ imp.

$\Rightarrow S+I \geq 10$.

e.g. $57 \times 11 = 627 \qquad SKI = S[S+I-11]I$

$= 11 \times \underbrace{[S-1]I}_{a\ \ b}$

$GOLF = [S-1][I-1][10-S][10-I]$

$S, I, S+I-11$

$(S,I) : (3,9)$ 1 imp.

~~Si $S=3$: 1 sol~~

$(4,I) : I-7 \quad 3 \quad I-1 \quad 6 \quad 10-I$

$(4,8) : 418 \quad 3762$
$(4,9) : 429 \quad 3861$ } 2 sol ✗ ✗

$(5,I) : 4 \quad I-1 \quad 5$ imp.

$(6,I) : 5 \quad I-1 \quad 4 \quad 10-I \quad I-5 \rightarrow I=8$

$SKI = 638 \qquad GOLF = 5742 \qquad OK$ ✗

$(7,I) : I-4 \quad 6 \quad I-1 \quad 3 \quad 10-I \rightarrow I=9$

$SKI = 759 \qquad GOLF = 6831 \qquad OK$ ✗

$(8,I) : I-3 \quad 7 \quad I-1 \quad 2 \quad 10-I \rightarrow I=4$ ou 6

$I=4 : SKI = 814 \qquad GOLF = 7326 \qquad OK$ ✗
$I=6 : \quad\ 836 \qquad\quad\ 7524 \qquad OK$ ✗

$(9,I) : I-2 \quad 8 \quad I-1 \quad 1 \quad 10-I \rightarrow I=4$ ou 7

$I=4 : \quad 924 \qquad 8316 \qquad OK$ ✗
$I=7 : \quad 957 \qquad 8613 \qquad OK$ ✗

8 sol

(14) $1/99 = 0,010101\ldots$

$25/99 = 0,252525\ldots$

$23 + \frac{25}{99} - \frac{1}{100} = \frac{23 \times 9900 + 2500 - 99}{9900}$

$23 \times 99 = 2277$

$= \frac{230200 - 99}{9900} = \frac{230101}{9900}$

(15) CDE équil. $r = 12$

$h = 12\frac{\sqrt{3}}{2}$ aire (trg CDE) $= 36\sqrt{3}$

disque: $\pi 12^2$ disque/6 : 24π

$36\sqrt{3} + 2(24\pi - 36\sqrt{3}) = 48\pi - 36\sqrt{3}$

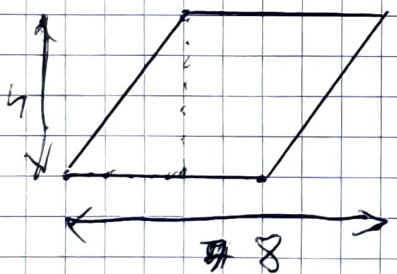
Blanc/12 $= 4\pi - 3\sqrt{3} = AC$

$4 \times 3,142 = 12,568$

$3 \times 1,732 = 5,196$

$- 7,372$

(16)



horiz: 3 possibilités

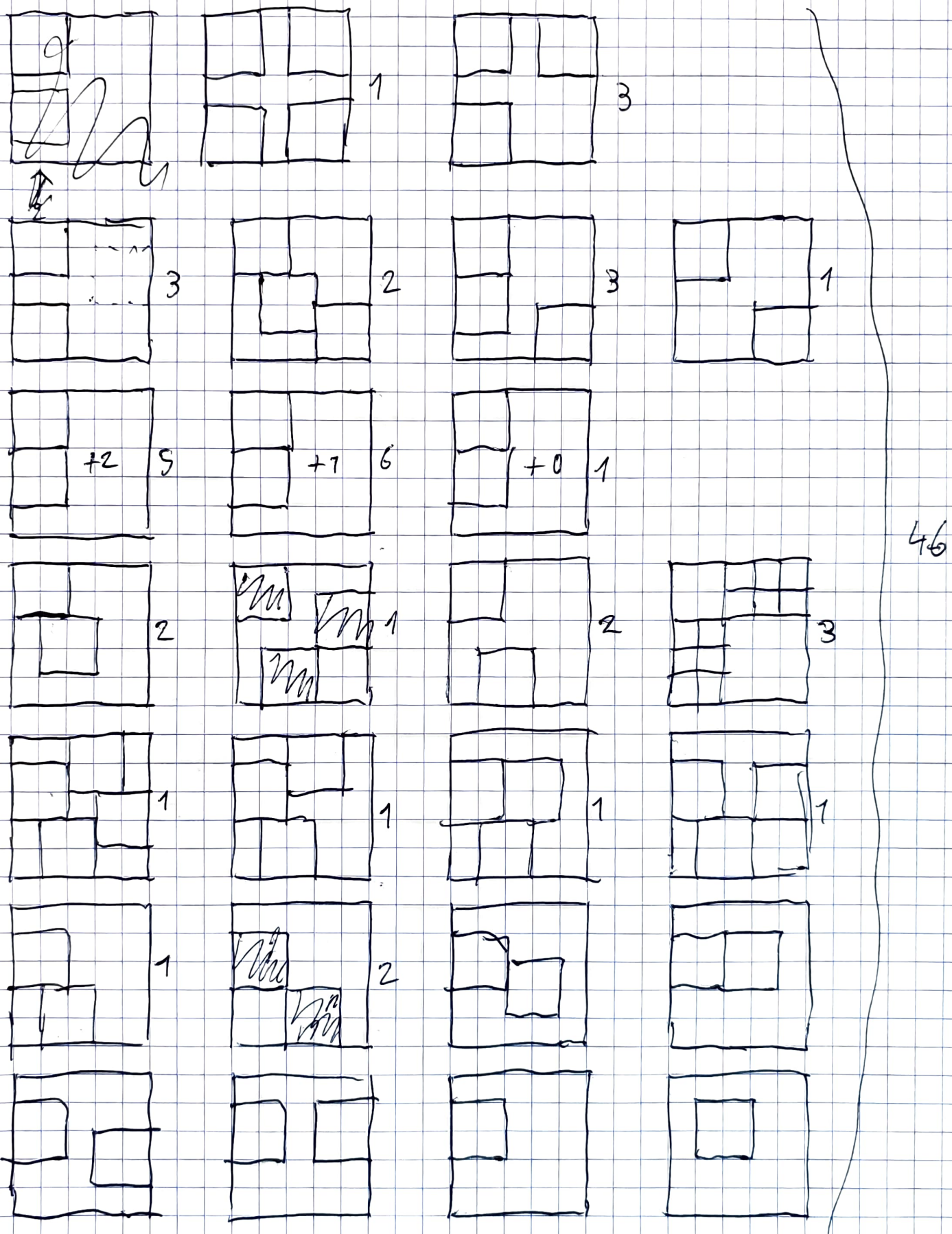
vert: 7 "

$\rightarrow 21 \times 2 \times 2 = 84$

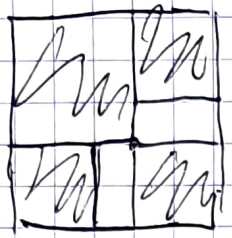
(17)

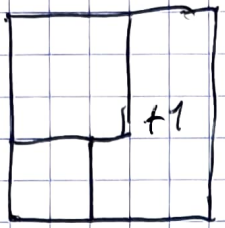
25 □ → 1

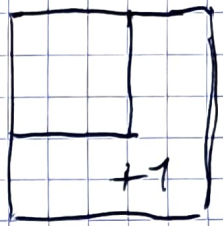
Avec 2×2 et 1×1

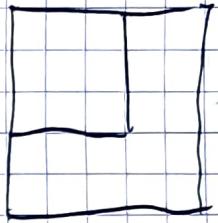


17 suite (1 + 46)

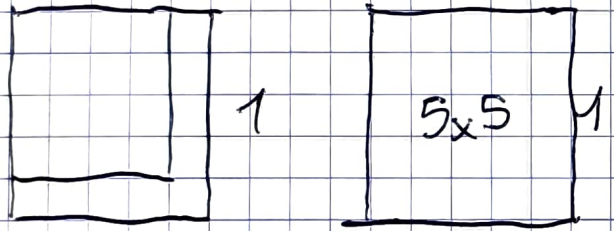








→ ~~16~~ 19



1 + 46 + ~~17~~ + 2 = ~~68~~
19 ~~66~~ 68