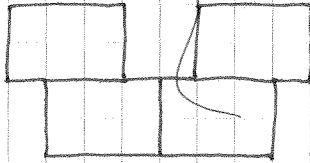


5

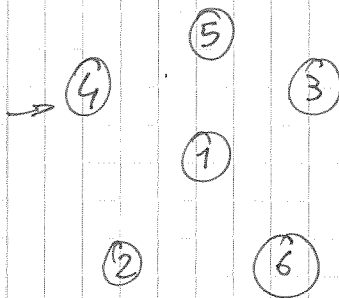
1	4	2	3
4	2	3	1
2	3	1	4
3	1	4	2

6



6x4

7



$$\begin{aligned}
 & \cancel{10 + 9 + 10 + 9 + 7} = 45 \\
 & = 25 + 5 \\
 & \rightarrow S = 20
 \end{aligned}$$

$$7 = 1 + 2 + 4$$

$$\rightarrow 10 = 1 + 4 + 5$$

8

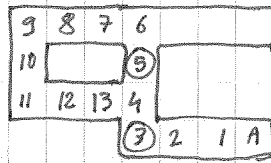
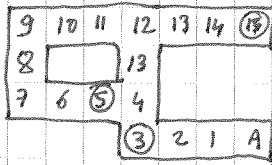
- 4 9 9 2 4 4
- 2 4 9 2 4 4
- 2 2 4 2 4 4
- 2 2 4 9 2 4
- 2 2 2 4 2 4
- 2 2 2 4 9 2

$$\begin{aligned}
 49 & \rightarrow 24 \\
 24 & \rightarrow 92
 \end{aligned}$$

2 2 2 2 4 2

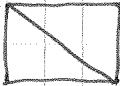
\exists tyro um chiffre $\neq 2$.

9



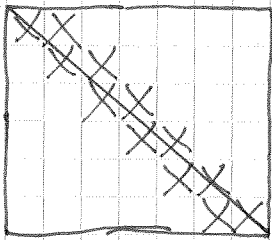
→ 4 sol^o

10



$$L + l - 1 = 12 \quad l = 6$$

→ 7



11

n pièces.

$$n = 9k + k = 10k \quad k < 9$$

$$n = 7p + p = 8p \quad p < 7$$

$$\rightarrow n = \boxed{40}$$

12

$$S = 153$$

$$A + N + D = 153 \quad 1 \leq D \leq 17$$

$$A = N + 32$$

$$2N + D = 121 \quad \rightarrow D \text{ imp.}$$

$$104 \leq 2N \leq 120$$

$$52 \leq N \leq 60$$

$$N = 1 + 2 + 3 + \dots + 10 = 55$$

$$\rightarrow N \geq 55$$

$$D = 121 - 2N \leq 11$$

$D = 1, 3, 5, 7, 9, 11$

$$N = 55 \rightarrow D = 11$$

$$N = 56 \rightarrow N = 56 \text{ imp.}$$

etc.

→ $\boxed{11}$

13

$$87 = a + 2b + 5c = 8k + r \quad |r| \leq 4$$

$k=10 \rightarrow 40 + 2 \times 10 + 5 \times 11 + r$ $\rightarrow k=11, r=-1$

$\rightarrow c=11, b=10, a=12$

$12 + 20 + 55 = 87 \rightarrow c = \boxed{11}$

14

$$pqr = 7(p+q+r)$$

~~$p \leq 7, q \leq 7, r \leq 7$~~

$r=7, pq = p+q+7, p < q$

$p | q+7$

$\bullet p=2 \rightarrow 2q = q+9 \rightarrow 3 \text{ imp.}$

$\bullet p=3 \rightarrow 2q = 10 \rightarrow q=5$

$\rightarrow \boxed{3, 5, 7}$

15

$20 \rightarrow$

$10 \times 2 :$	-2	reste	18
4×5	-5	reste	15
$20 \times 1 :$	-1	reste	19

$18 \rightarrow$

$9 \times 2 :$	-2	reste	16
$6 \times 3 :$	-3	reste	15
$18 \times 1 :$	-1	reste	17

$20 \rightarrow 19, 18, 15$

$19 \rightarrow 18$

$18 \rightarrow 17, 16, 15$

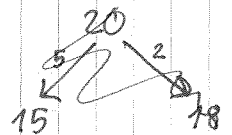
$17 \rightarrow 16$

$16 \rightarrow 15, 14$

$15 \rightarrow 14, 12, 10$

$14 \rightarrow 13, 12, 7$

$r=17$



15

1:	1	-	0
2:	1	-	1
3:	2	-	1
4:	3	-	1
5:	2	-	3
6:	4	-	2
7:	3	-	4
8:	5	-	3
9:	5	-	4
10:	8	-	2
11:	3	-	8
12:	9	-	3
13:	4	-	9
14:	11	-	3
15:	7	-	8
16:	9	-	7
17:	8	-	9
18:	11	-	7
19:	8	-	11
20:	13	-	7



13

1023

16

21 - 6
1+2+3+...+6 = 21

1	2	3	4	5	6
2	2	2	4	5	6
0	2	4	4	5	6
0	2	4	4	10	1

1	2	3	4	5	6
1	2	6	1	5	6

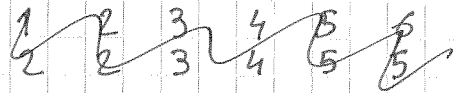
1	2	3	4	5	6
1	2	3	4	10	4

0	2	4	4	10	4
0	2				

1	2	3	4	5	6
2	2	3	3	5	6
4	2	1	3	5	6
4	4	1	1	5	6
0	8	1	1	5	6
0	8	1	2	5	5
0	6	1	4	5	5
0	6	2	3	5	5

0	8	1	1	10	1
0	8	1	2	9	1
0	8				

1	2	3	4	5	6
1	2	3	8	5	2
1	4	3	8	5	0
1	8	3	8	1	0
1	16	3	0	1	0
1	13	6	0	1	0
1	13	5	0	2	0
1	11	5	0	4	0
2	11	5	0	3	0
4	9	5	0	3	0
1	9	5	0	6	0
1	9	10	0	1	0
1	18	1	0	1	0



Faire 4 x 5
 → faire 6 puis 6 - 1
 → imp.
 → faire 2 x 9
 BUTA imp?

5 + 5 + 5 + 6 ?
 imp pb parite ?

→ 4 x 16
 = 64

→ 12 x 18
 = 216 ?

1	2	3	4	5	6
1	2	3	4	10	1
1	2	6	1	10	1
1	2	6	2	10	0
1	4	6	0	10	0
1	8	6	0	10	0
1	16	2	0	2	0
1	14	4	0	2	0

1	12	7	0	1	0
1	5	14	1	1	1
1	10	9	1	1	1
1	1	18	1	1	1

8 x 18 = 144

16

122

1	2	3	4	5	6
1	2	3	4	10	1
1	4	1	4	10	1
1	1	1	8	10	
1	1	2	7	10	
1	1	4	3	10	

1	2	3	4	5	6
1	2	3	4	10	1
1	2	3	4	9	2
1	3	4	4	9	
1	3	8	9	9	
2	3	8	8		
4	3	6	8		

5	5	5	6		
---	---	---	---	--	--

2	18	1
4	16	1
4	13	2
4	11	4

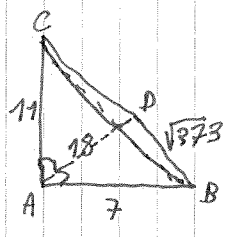
2	18	1
4	16	1
8	12	1
7	12	2
7	10	4
3	10	8
6	5	10
1	10	10
1	0	20

18x20

1	2	3	4	5	6	1	2	3	4	5	6
1	2	3	4	10	1	1	2	3	4	1	10
2	2	3	4	10							
3	4	4	10								
3	8	10	10								
6	5	10									
1	10	10									
1	20										

→ 140?

17

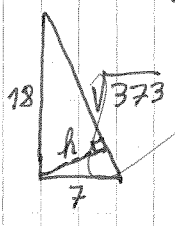


$$DB = \sqrt{373}$$

$$BC = \sqrt{170}$$

$$CD = \sqrt{445}$$

180?



$$h = \frac{18 \times 7}{\sqrt{373}}$$

$$18^2 = 324$$

$$\frac{49}{373}$$

$$18^2 + 7^2 = 373$$

$$121 + 49$$

$$h_{C/BD} =$$

1
2
3

	1	2	3	4	5	6	7	8	9
①	1	1	1	2	2	3	4	4	4
②	1	1	2	2	3	3	3	4	4
③	1	1	2	2	2	3	3	4	4
④	1	1	2	2	3	3	3	4	4

$1 + 2 + 3 + 4 = 10 \rightarrow 90$

$90 / 4 = 45 / 2 \rightarrow \boxed{22?}$

	1	2	3	4	5	6	7	8	9
1 ^{er}	①	①	①	②	②	③	③	④	④
2 ^e	③	③	③	①	①	④	④	②	②
3 ^e	④	④	④			①			
4 ^e				④	④				

	1	2	3	4	5	6	7	8	9
①	1	1	1	2	2	3	4	4	4
②	4	4	3	1	1	2	2	3	3
③	2	3	4	3	4	1	1	2	2
④	3	2	2	4	3	4	3	1	1

1	1	1	3	3	3	4	4	4	x 3
2	2	2	2	2	5	5	5	5	
2	2	2	2	5	5	5	5	5	