

5

12 = 1 + 5 + 6 non

2 + 5 + 5

3 + 4 + 5

4 + 4 + 4

→ 3

6

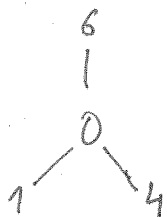
2 chiffres: $9 + 2(n - 9) = 2n$

3 chiffres: $9 + 2 \times 90 + 3(n - 99) = 2n$

$189 + 3n - 3 \times 99 = 2n$

$n = 297 - 189 = 108 (= 99 + 9)$

7



$a = 6$

1 4 6 2 3 5

1 sol^o: 1, 4, 6

8

$168 / (2 \times 12) = 7$

$3 \times 2 \times 7 = 126$

reste 42 barres pour 3: $42 / 6 = 7$ jours.

$(3 \times 2 \times 7)$

D L → lundi
1 2

9

MBIEN → combien

C	O	M	B	I	E	N	.	D	E
F	O	I	S	.	D	O	V	Z	E
E	S	T	-	I	L	.	C	O	N
T	E	N	U	.	D	A	N	S	?
H	U	I	T	-	C	E	N	T	-
Q	U	A	R	A	N	T	E	.	?

$12x = 840$

70

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

(10)

5 пер → 1
 3 пер → $\binom{5}{3} = 10$
 2 пер → $\binom{5}{2} \times 2 = 20$
 1 пер → $5 \times (24 - 4 \times 2 - 6 - 1) = 5 \times 9 = 45$
 ~~$5 \times 24 = 120$~~
 $= 5 \times 9 = 45$

1 2 3 4
 3 $\begin{pmatrix} 0 & 1 & 2 & 3 \\ 0 & 3 & 1 & 2 \end{pmatrix} / 21$
 $= 9$
 2 $\begin{pmatrix} 2 & 3 & 1 & 0 \\ 3 & 1 & 2 & 0 \end{pmatrix}$
 $(3+2) \times 4 = 44$

$120 - 45 - 20 - 10 - 1 = \boxed{44}$

(11)

- 1: 2000
- 2: 1001
- 3: 2003
- 4: 4007
- 5: 8015
- 6: 16031

$2000 = A$
 $A - 999$
 $2A - 999 - 998$
 $4A$

$1000 \times 2^{n-2} + 2^{n-1} - 1 \quad n = 26$
 $1000 \times 2^{24} + 2^{25} - 1$

- $2^{10} = 1024$
- $2^{20} = 1048576$
- 21: 2097152
- 22: 4194304
- 23: 8388608
- 24: 16777216
- 25: 33554432

16777216000
 $+ 33554431$
 $\boxed{16810770431}$

(12)

abc

ab
ba
ac
ca
bc
cb

$$22 \times (a+b+c)$$



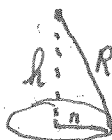
8 à 24

6	7	8	9	10	11	12	13	14	15
<u>132</u>	154	176	198	220	242	<u>264</u>	286	308	330
16	17	18	19	20	21	22	23	24	
352	374	<u>396</u>	418	440	462	484	508	528	

3 sol^o: 132, 264, 396

(13)

$$R = 10 \text{ cm}$$



$$h^2 + \left(\frac{\alpha}{2\pi} R\right)^2 = R^2$$

$$h^2 = R^2 \left(1 - \left(\frac{\alpha}{2\pi}\right)^2\right)$$

$$H^2 = R^2 \left(1 - \left(\frac{2\pi - \alpha}{2\pi}\right)^2\right)$$

$$1 - (1 - x)^2 = 4(1 - x^2)$$

$$1 - x^2 + 2x - 1 = 4 - 4x^2$$

$$3x^2 + 2x - 4 = 0$$

$$x = \frac{-2 \pm \sqrt{4 + 48}}{6} = \frac{-2 + 2\sqrt{13}}{6} = \frac{\sqrt{13} - 1}{3} \approx 0,9$$

$$x' = 1 - x = \frac{4 - \sqrt{13}}{3}$$

$$360 x' = 120(4 - \sqrt{13}) = 120 \times 0,394 = 12 \times 3,94 = 47,28$$

47394
12
3940
788

(14)

A 1
 B 8 0 7 9 ~~8079~~

1

99
 10

$$\begin{array}{r}
 1238 \\
 \times 8079 \\
 \hline
 11142 \\
 8666 \\
 9904 \\
 \hline
 10001802
 \end{array}$$

1 sol:
10001802

$$\begin{array}{r}
 125. \\
 8079 \\
 \hline
 1. . . . \\
 \\
 9. . .
 \end{array}$$

≤ 1428
~~A ≥ 1428~~

10000	7
30	1428
20	
60	
4	

$1112 \leq A \leq 1428$

8000	7
10	1142
30	
20	
6	

~~A ≥ 1143~~

$8A \geq 9880$

$A \geq 1235$

$8 \times 1300 = 10400$

↓

$A < 1300$

994

$$\begin{array}{r}
 1200 \times 8079 = 80790 \\
 16158 \\
 \hline
 9694800 \\
 242370 \\
 \hline
 9937170 \\
 + 30 \times 8079 : \\
 24237
 \end{array}$$

(15) 40?

1+3
2+5 | 1+2+3 ou 1+5

32 = 17+18 32 → 1 et 3 collés.

1+3
1+2+3 ou 1+5
2+5
1+8 ou 1+3+5

12 = 8+3+1 → 8 collé à (1,3)

13 = 8+5 ou 8+3+2



2+3+5 ou 2+8

14 = 8+5+1 = 8+3+2+1

15 = 8+5+2

16 = 8+5+3
= 8+5+2+1

18 = 17+1

~~1/3~~ {1,3}
~~2/5~~ {2,5}

a

1	3	
17		

b

1	17	
3		

c

3	1	17

a:

1	3	8
2	5	17

 non (13)

1	3	17
5	2	8

 non (12)

1	3	17
8	2	5

 non (18)

1	3	8
17	5	2

 non (6)

1	3	5
17	8	2

 non (6)

1	3	2
8	17	5

 non (13)

1	3	2
17	8	5

 non (9)

b:

1	2	5
3		

 non (8)

1	8	17
3	2	5

 non (17)

1	5	2
3	17	8

 non (12)

c:

3	1	8
2	5	17

 non (13)

3	1	5
17	8	2

 non (12)

3	1	2
		5

b:

1	17	8
3	2	5

 non (9)

c:

3	1	17
2	5	8

 non (12)

3	1	17
8	2	5

 non (6)

3	1	17
8	5	2

1	17	
3	5	2