

7)  $8 \times (E, F, D)$

$$\frac{8 \times 7}{2} \times 3 = 28 \times 3 = 84$$

8) ~~140~~

13h10: 1<sup>er</sup>

$$13h08 + 99 \times 2 = 13h08 + 198 = 13h08 + 3h18 = 16h26$$

9) Si J une fois: ~~face~~ face cachée du 1: J ou O (1 fois)



V|B

~~face cachée du 1: J, B, R~~

J|V et V|B



OK  $\Rightarrow$  V seule sol<sup>o</sup>



O|V et O|R impossible.

Si J 2x: J|R et J|B et O|V imp.



10)  $\square + \Delta = 101$

$$\begin{array}{r} EC \\ + EE \\ + CET \\ \hline ECE \end{array}$$

$$\begin{aligned} C+T &= 10 \\ 3E+1 &= 10+C \quad \text{ou} \\ C+1 &= E \\ \downarrow \\ 3E &= 8+E, E=4 \\ C &= 3 \\ T &= 7 \end{aligned}$$

$$\begin{aligned} C+T &= 10 \\ 3E+1 &= 20+C \\ C+2 &= E \\ \downarrow \\ 3E &= 17+E \\ \text{imp.} \end{aligned}$$

$$\begin{array}{r} 43 \\ + 44 \\ + 347 \\ \hline 434 \end{array}$$

11) 8h 8h5 8h10 8h15

Ecart dep: 5, 10, 15

" arr: 3, 2, 4, 5, 6, 9

x et x+1

arr à 3 min de l'arrivée d'écart.

~~ADCB~~

~~DCBA~~

~~ADCB~~  $\rightarrow$  ~~imp.~~

~~CDAB~~  $\rightarrow$  ~~x=A~~

~~DABC~~  $\rightarrow$  ~~x=A~~

~~DCBA~~  $\rightarrow$  ~~x=C imp.~~

~~ADCB~~

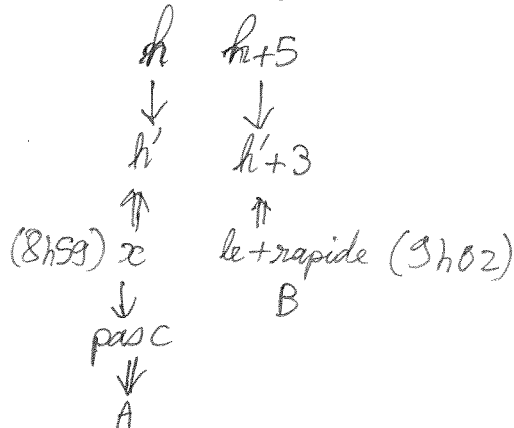
~~DCBA~~

D x B  $\rightarrow$

8h	8h5	8h10	8h15
C	D	A	B
3h04	3h08	3h59	3h02
64	63	49	47

8h	8h5	8h10	8h15
D	A	B	C
3h04	3h59	3h02	3h08
64	54	52	53

$\rightarrow$  2 sol<sup>o</sup>: BADC et BCAD



⑫  $2006 \times 26 \equiv 0 [4]$

• ~~Abstraktion~~

• X: 0 2 -2 4 -4 ...

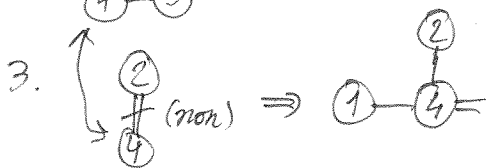
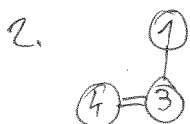
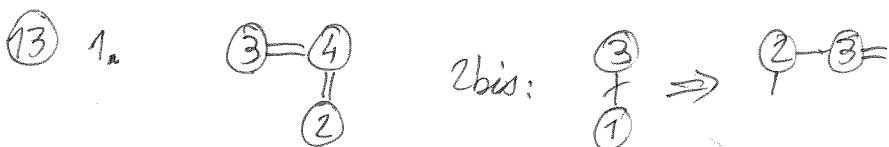
1	2	3	4	5	6	7	8	9	10	11	12
0	0	2	2	-2	-2	4	4	-4	-4	6	6
			↑				↑			↑	↑

$\frac{2006 \times 26}{2} = \cancel{1003} \times 26 = 26078$

• Y: 0 1 1  $\downarrow$  -2 -2 3 3  $\downarrow$  -4 -4 5 5  $\downarrow$  -6 -6

	1	2	3	4	5	6	7	8			12
--	---	---	---	---	---	---	---	---	--	--	----

Y = -26078



14)  $24 = 2^3 \times 3 = 1 \times 2 \times 3 \times 4$  ou

$30 = 1 \times 2 \times 3 \times 5$

$16 =$   ~~$1 \times 1 \times 4 \times 4$~~   $\rightarrow$  imp (diag).  
 ou  $1 \times 2 \times 2 \times 4$   
 ou  $\rightarrow$  placés, puis 3 en bas à dr.

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

			2	
2	1			
4	2	1	5	3

		2	3	
2	1	5		
4	2	1	5	3

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

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

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

16)  $(a+d)(c+d)(e+f) = 2006 = 2 \times 1003 = 2 \times 17 \times 59 \times 1$

1	1	2006	$\rightarrow$	2008
1	2	1003		1005
1	17	118		136
1	34	59		94
2	17	59		78

} 5 sol<sup>o</sup>



Le Noyau:  $(0, 0, 0)$

P:  $(0, 0, x \neq 0)$

~~$(0, x, x) \text{ avec } x \neq 0$~~

$(0, 1, 2)$

$(0, 3, 4)$

$(0, 2k-1, 2k)$

$(1, 3, 5)$

$(1, 4, 6)$

$(1, 7, 9)$

$(1, 8, 10)$

$(2, 3, 6)$

$(2, 4, 5)$

$(2, 7, 10)$

$(2, 8, 9)$

$(0, 1, x \geq 3)$

$(0, 2, x \geq 3)$

$(0, 3, x \geq 5)$

$(0, 4, x \geq 5)$

$\vdots$

$(1, 2, x \geq 3)$

$(3, 4, x) \dots$   
 $x \geq 1$

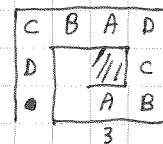
$(3, 7, 11)$

~~$(3, 8, 11)$~~

$(4, 8, 11)$

$(5, 9, 11)$

$(6, 10, 11)$



4 sol<sup>o</sup> A, B, C, D

18

