⑤

$S = (7+1)(1+2+\dots+6)$

$= 8 \times 21 = 168$

$168 - 158 = 10 \rightarrow$ **5-5**

---

⑦

~~Couples de niv : 8×7/2 = 28 → 14 mini.~~

28 couples → $\lceil 28/3 \rceil = 10$ mini.

– 1 réutilisation pour 1, 2, 3, 4 … 8

→ 4 réuti° mini

→ 32 couples.

→ 11 mini

~~123~~
~~456~~
~~78~~

123
145
167
128
246
257
347
356
348
568
78

(8)

[illegible]

---

(9)

$a^2 = c^3 \rightarrow k^6$

$2^6 = \boxed{64}$ 2 sol°

$3^6 = \boxed{729}$

$1 - \sqrt{1+1} - \sqrt{2^2+0} - \sqrt{1+2^2} - \sqrt{2^2+2^2}$

$\sqrt{3^2+0} - \sqrt{3^2+1} - \sqrt{3^2+2^2}$

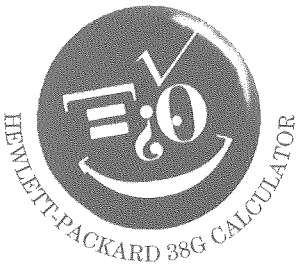
$(0,1) - (1,1) - (0,2) - (1,2) - (2,2)$

$(0,3) - (1,3) - (2,3) - (3,3)$

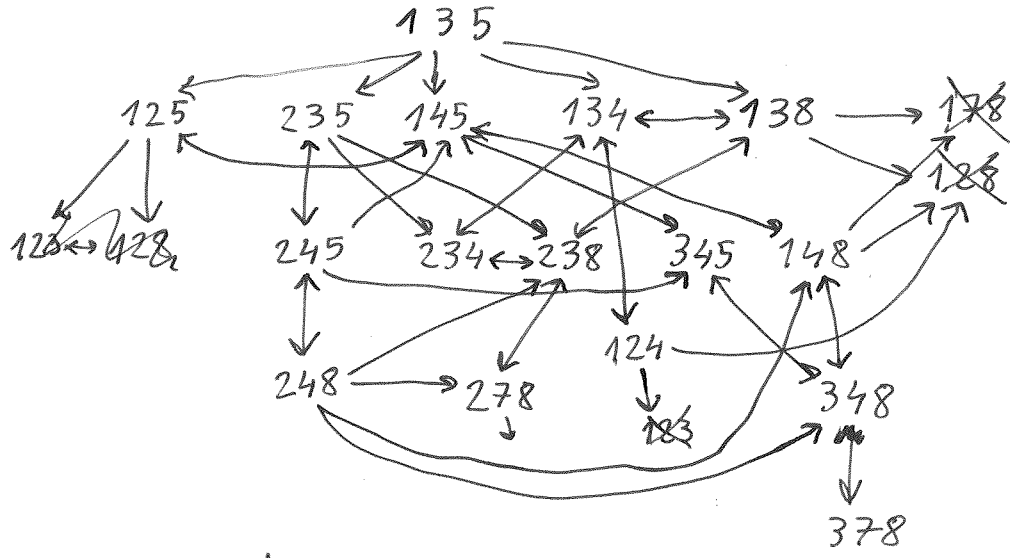
8
6 2 1 7
4 3 9
5

10	3	5	
8	1	2	
6	4		7
			9

	5	3	10
	2	1	8
7	4	4	6
9			



(11)



135 _ 125 _ 145 _ 345 _ 348 _ 378 _ 678 _ 178 _ 128 _ 123 (9)

~~148 _ 348~~

~~238~~

135 _ 235 _ 245 _ 248 _ 278 _ 238 _ 234 _ 134 _ 138 _ 178 (11)

_ 345 _ 145 _ 148 _ 348 _ 378 _ 678 (11)

348 _ 148 _ 145 _ 125

_ 145 _ 345

_ 148

(12)

$S = \pi \times 25 \simeq 25 \times 3,14 = 78,5$

$80/4 = 20$ au minimum

$\rightarrow 4+5+5+5+4 = \underline{23}$?

0		1		2		3		4		5
0		2		8		20		40		70
	2		6		12		20		30	
		4		6		8		10		
			2		2		2			
				0		0				

$$P(n) = 2n + \frac{4n(n-1)}{2} + 2\,\frac{n(n-1)(n-2)}{6}$$

$$= 2n + 2n^2 - 2n + \frac{n(n-1)(n-2)}{3}$$

$$= \frac{n(n-1)(n-2)}{3} + 2n^2$$

[667

$P(4) \rightarrow 4 \times 5$

$P(2001)$?

$$\frac{2001 \times 2000 \times 1999}{3} + 2 \times 2001^2$$

$$\frac{2001}{3}\left(3998000 + 6 \times 2001\right) = \frac{2001}{3} \times 4010006$$

12006

$$\begin{array}{r} 8020012000 \\ +\quad 4010006 \\ \hline 8024022006 \end{array}$$

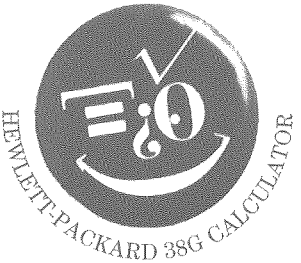
/3 → **2674674002**

2 → 3

3 → 7

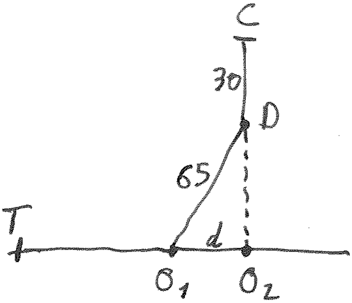
4 → 15?

5 → 30?



HEWLETT®
PACKARD

$r_1 = 65$



$r_2 = O_2D + 30 = 65 + d$

$$\begin{array}{r} 42 \\ \times\ 21 \\ \hline 882 \end{array}$$

~~$d^2 + 65^2 = (35+d)^2$~~

$65^2 - d^2 = O_2D^2 = (35+d)^2$

$2d^2 + 70d + 35^2 - 65^2 = 0$

$d^2 + 35d - 3000 = 0$

$d = \frac{-35 \pm 115}{2}$

$= 80/2 = 40$

$$\begin{array}{r} 35 \\ \times\ 35 \\ \hline 1225 \end{array} + 12000$$

$= 13225$ | 25

72 | 529

225 | ||

23^2

$$\begin{array}{r} 23^2 \\ \times\ 23 \\ \hline 529 \end{array}$$

$23 \times 5 = 115$

$r_2 = 105$

$L = 4r_2 = 420$

$l = 2r_2 = 210$

$A = Ll =$ ~~[illegible]~~ $8{,}8200\ m^2$

P_1 P_2 ... poules.

P_{270} n poules.

Oeuf jour j.

- Si vendu → 1 pt
- Sinon après 90j → 1 pt + ?

$360 - 90 = 270$

oeuf j. 270 → poule j. 360 + 1 oeuf.

→ Si $j \leq 270$, on attend 1 poule.

j: 1 à 90 : j oeufs.

j: 91 à 180 : $2(j-90)$

j 1 : 1 oeuf

j 91 : oeuf → poule

91: 91 + 1
92: 92 + 2

90 : 90 oeufs. + 1 poule

91 : 2 poules + 91 oeufs

92 : 3 poules + 93 oeufs

93 : 4 " + 96 "

94 : 5 " + 100 "

⋮

180 : 91 " + $\left(90 + \frac{90 \times 91}{2}\right)$

	1	2	3	4	5
0	1	4	10	20	35
	1	3	6	10	15
		2	3	4	5
			1	1	1

$P(n) = n^2 + n(n-1) + n(n-1)(n-2)/6$

HEWLETT® PACKARD

(16)²

8190 / 2 = 4095

270 premiers ~~premiers~~ oeufs de poule 1 →

180 : 91 poules + 4185 oeufs.
181 : 93 " + (4183 + 93) ↙ + 91
182 : 96 " + ( ) ↙ + 93
183 : 100 " + ↙ + 96

270 : # poules = $90 + \frac{90 \times 91}{2} = 4185$

oeufs = $4185 + 90^2 + \underbrace{(1+3+6+10+\ldots+\frac{90\times 91}{2})}_{90^2 + 15 \times 89 \times 88}$

$= 4185 + 16200 + 117480$

16200
133680
+ 4185
137865

88 × 5 = 440
× 3 = 1320
× 89

89 × 132
89
× 132
11748

13200
- 1320
11880
- 132
11748

HEWLETT® PACKARD

(16)^3

270: 4185 poules et 137865 oeufs.
271: 4278 " et " + 4185 oeufs ↓ + 4185
272: 4374 " ↓ + 4278
⋮

360: 137865 + (4185 + 4278 + 4374 + ...
P(90)

~~± 137865 + 4185 × 90 + (0 + 93 ...~~

0

4185 4278 4374 4474

93 96 100

3 4

1

4185 × 9 = 37665

93 × 89 = 8277

8277 × 9 = 74493

744930 / 2 = 372465

(16) 4

$$P(n) = 4185n + 93\,\frac{n(n-1)}{2} + \frac{3n(n-1)(n-2)}{6} + \frac{n(n-1)(n-2)(n-3)}{24}$$

~~P(90) = 4185 × 90~~

$S = 137865 + P(90)$

$= 137865 + 376650 + 372465 + 352440 + 2555190 = \boxed{3794610}$

$90 \times 89 \times 44$

$$\begin{array}{r} 89 \\ \times\ 44 \\ \hline 3916 \\ \times\ \ \ 9 \\ \hline 35244 \end{array}$$

$90 \times 89 \times 11 \times 29$

$$\begin{array}{r} 89 \\ \times\ 29 \\ \hline 2581 \\ \times\ \ 11 \\ \hline 2581 \\ +\ 2581 \\ \hline 28391 \\ \times\ \ \ 9 \\ \hline 255519 \end{array}$$

$$\begin{array}{r} 137865 \\ 376650 \\ 372465 \\ 352440 \\ 2555190 \\ \hline 3794610 \end{array}$$

~~3780~~