① $(13-7)/2 = 3$

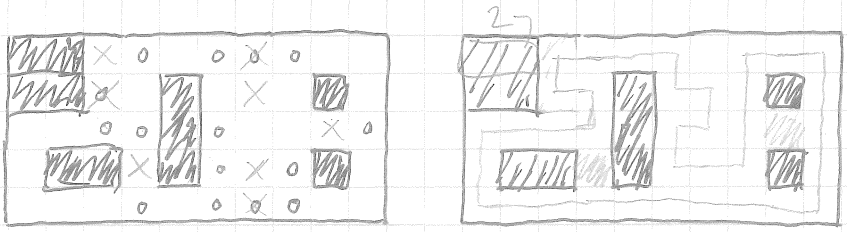
② 2 et 4 → 6

③ 1 pal. ts les 11

④ 18, 22, 26, ..., $4n+2$

→ $2n+1$ → impairs. 0

⑤



5

⑥ $6 \times 5 - 3 = 27$

⑦ 10, 5, 2, 2, 2

→ 21

5, 2, 2, 2 ..., 2 (8×)

⑧

4	3	2
3	2	1
2	1	0

18

4	3	2
3	2	1
2	1	2

20

2 ou 4

	3	
3	2	3
	3	

2 ou 4

2 ou 4

→ 14 + {8, 10, 12, 14, 16}

2	1	2
1	2	1
2	1	2

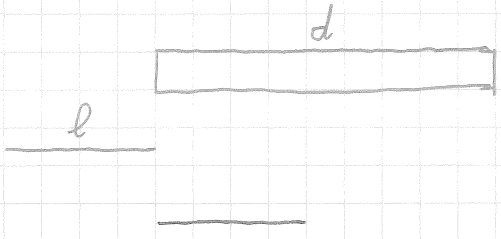
14

2	3	2
1	2	1
2	1	2

16

5 + 2 = 7

(9)



$d+l=1800$

$|d-l|=200$

- $d+l=1800$, $d-l=200$ $\rightarrow$ $d=1000$, $l=800$

  $800\,m / 30s$ $\quad \frac{800}{30} \times 3,6 = 80 \times 1,2 = 8 \times 12 = \underline{\underline{96}}$

- $d+l=1800$, $l-d=200$ $\rightarrow$ $l=1000$, $d=800$

  $\frac{1000}{30} \times 3,6 = 100 \times 1,2 = \underline{\underline{120}}$

(10) $d_1 = 21 - d_4$

$d_2 = 21 - d_4 - 6 = 15 - d_4$

$d_3 = 6 + d_4$

$d_4 = x$

$\frac{\pi}{4}\left[(21-x)^2 - (15-x)^2 + (6+x)^2 - x^2\right]$

$= \frac{\pi}{4}\left(21^2 - 15^2 + 6^2\right)$

$= \frac{\pi}{4} * (441 - 225 + 36) = \frac{\pi}{4} \times 252$

$= \frac{\pi}{4}(6 \times 42) \simeq \frac{22 \times 6 \times 42}{4 \times 7} = 22 \times 9 = 198$

$36+6$

(11) produit = ... (4 ou 6) 3 derniers chiffres?

2 × 18 = 036
3 × 18 = 054 } non

7 × 18 = 126 non

8 × 18 = 144

12 × 18 = 216

13 × 18 = 234

18
36
54
72
90
108
126
144
162
~~180~~ 180
~~198~~ 198
216
234

2018
4036
6054
8072

2018 × 13 = 26234

17 × 18 = 306
18 × 18 = 324
22 × 18 = 396
~~23~~ × 18 = 414
27 × 18 = 486
28 × 18 = 504
32 × 18 = 576
33 × 18 = 594
37 × 18 = 666
38 × 18 = 684
42 × 18 = ~~4~~756
43 × 18 = 774
47 × 18 = 846
48 × 18 = 864
52 × 18 = 936

~~036~~
~~2736~~

036
1836
3636
5436

4036
6054

4036
26234
~~26274436~~

6054
4036

26234
6054 non

44396 non

64576 non

66594 non

84756 non

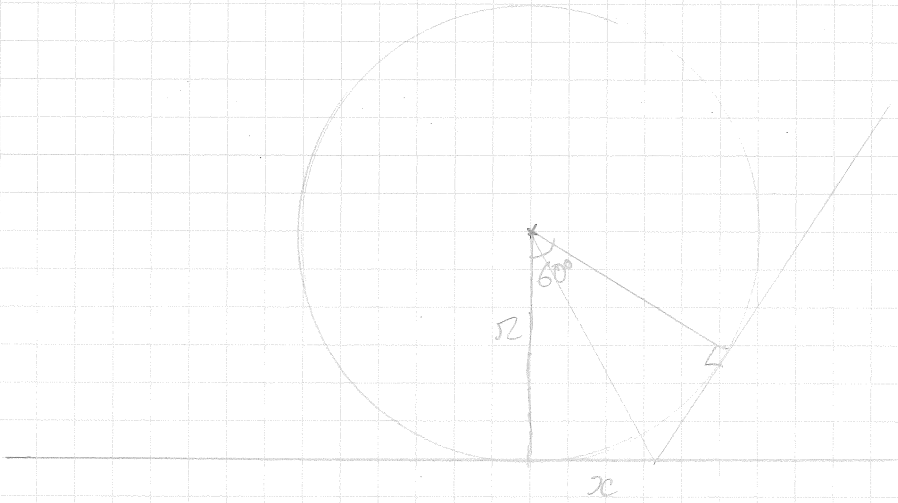
86774 non

94846
8072 non

96864 non

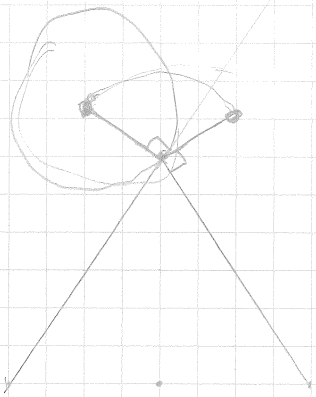
104936

(12)



$x^2 + r^2 = (2x)^2$

$x = \frac{r}{\sqrt{3}} = \frac{r\sqrt{3}}{3}$



$\alpha = 360 - 90 - 90 - 60$

$= 120°$

$\rightarrow$ 1/3 cercle

En mètres :

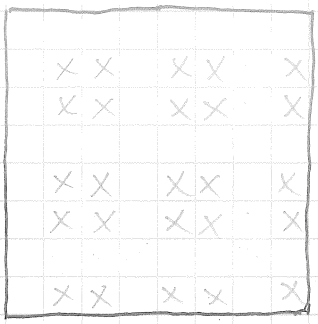
$40 - 4x + \frac{2\pi r}{3} = 40 + \frac{r}{3}(2\pi - 4\sqrt{3})$

$2\pi - 4\sqrt{3} \simeq 6{,}28 - 6{,}92 = -0{,}64$

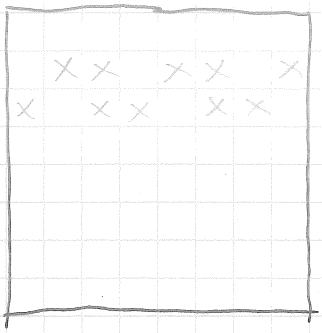
$40 - \frac{0{,}5}{2} \times 0{,}64 = 40 - 0{,}16 = 39{,}84$

$\rightarrow$ 3984

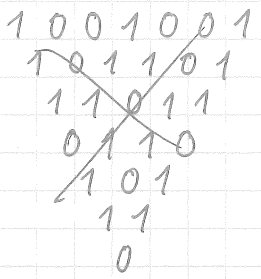
(13)

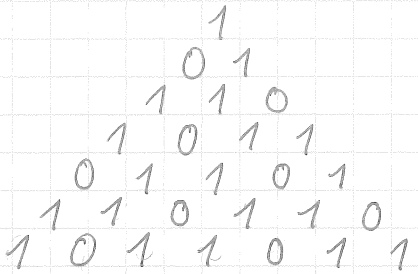


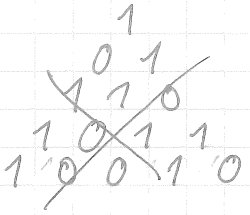
25?



(14) 1 0 1 0 1 0 1 → 10







1 2 3 5 6 7 9
3 5 8 11 13 16
8 13 19 24 29
21 32 43 53
53 75 96
128 171
299

(15)

11 : +1

10 : +1 (2 choix) : +1 (2)

9 : 0 ou +2

8 : 0 (4) ou +2 (4)

7 : −1 (4) ou +1 (8) ou +3 (4)

6 : −1 (8) ou +1 (16) ou +3 (8)

5 : −2 (8) ou 0 (24) ou +2 (24) ou +4 (8)

4 : −2 (16) ou 0 (48) ou +2 (48)

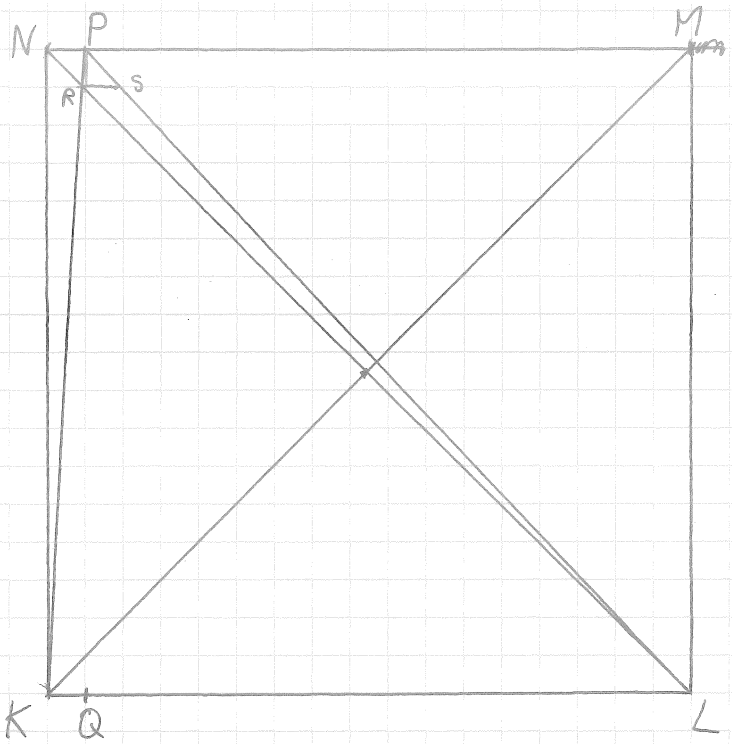
3 : −1 (64) ou +1 (96)

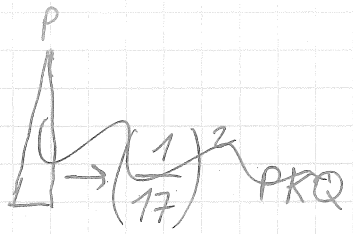
2 : −1 (128) ou +1 (192)

1 : 0 (320)

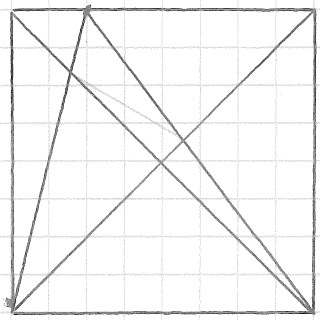
$320 \times 2 = 640$ (car 11 : −1 ou +1)

17





$PRS = \left(\frac{1}{17}\right)^2$



(18) $\frac{4S-1}{3} = k^2$

$S = \frac{N(N+1)}{2}$ $\qquad \frac{2N(N+1)-1}{3} = k^2$

$2N(N+1) = 3k^2 + 1$

$2N(N+1) - 1 = 3k^2$

$N \equiv 1 \ [3]$ $\qquad N = 3n+1$

$2(3n+1)(3n+2) - 1 = 18n^2 + 18n + 3$

$6n^2 + 6n + 1 = k^2$

$(3n+1)(2n+1) = k^2 - n$

$6n(n+1) = k^2 - 1 = (k+1)(k-1)$ $\qquad 4 \mid n(n+1)$

$n = 8 \leftrightarrow 6 \times 8 \times 9$ non

$6 \times 11 \times 12$