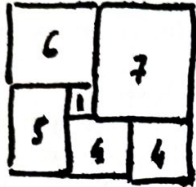


1 D 2 4 pages ($n5 + 8 \times 2 = 3 \times 5 + 13 \times 2 = 5 \times 5 + 8 \times 2 = 7 \times 5 + 3 \times 2$) 3 6

4 119 minutes. 5 $(a, b) = (14, 6)$ 6 90. 7 9: 2000, 2001, 2004, 2007, 2010, 2016, 2020, 2022, 2023

8 20:11, 21-28:12; 29,30:11; 31:7 126

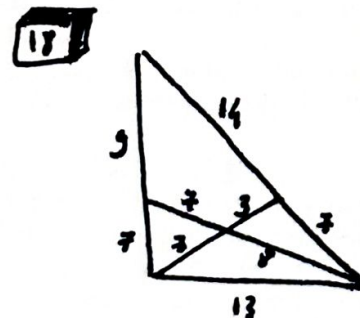
9  48 10 1857, 1875 11 22? 12 $83^3 = 571787$

13 4900 m² 14 $41 = 2+2+37 = 5+5+31 = 11+11+19 = 17+17+7 = 13+13+5$

15 $u_k = 7k$ $\sum_{k=1}^n (2k-1) = 17^2$ $n=17$ rangs blancs
 $\sum_{k=1}^{17} 7 \times (2k) = 1904$ rangs noirs.

16 Par dichotomie: $100 \xrightarrow{600} 50 \xrightarrow{600} 25 \xrightarrow{600} 12 \xrightarrow{600} 6 \xrightarrow{600} 3 \xrightarrow{600} 1 \xrightarrow{600} 1$ 8000 (ok sans direction?)
 \rightarrow Python

17 $(A_{n+1} = \frac{1}{2} A_n)$ Pour les carrés: $C_n = \frac{a^2}{2^n}$ Pour les disques: $D_n = \frac{1}{2^n} \frac{\pi a^2}{4}$
 $A_n = D_n - C_{n+1} = \frac{a^2}{2^{n+1}} (\frac{\pi}{2} - 1)$ $A = \sum_{n=0}^{\infty} A_n = a^2 (\frac{\pi}{2} - 1)$



Al kashi et Heron pour conclure.

$A = \sqrt{25 \times 12 \times 4 \times 3} = 60\sqrt{3} \approx 104$

