

① On utilise ici les formules: $\sum_{k=p}^q k = \frac{(q-p+1)(p+q)}{2}$ et $\sum_{k=0}^n k = \frac{n(n+1)}{2}$

$$\bullet 7+8+\dots+37 = \sum_{k=7}^{37} k = \frac{(37-7+1)(37+7)}{2} = 31 \cdot 22 = 682$$

$$\bullet 7+9+11+\dots+37 = \sum_{k=3}^{18} (2k+1) = 2 \sum_{k=3}^{18} k + \sum_{k=3}^{18} 1$$

nombre de termes = $18-3+1$

$$= 2 \cdot \frac{(18-3+1)(18+3)}{2} + 18-3+1 = 16 \cdot 21 + 16 = 16 \cdot 22 = 352$$

$$\bullet 7+10+13+\dots+37 = \sum_{k=2}^{12} (3k+1) = 3 \sum_{k=2}^{12} k + \sum_{k=2}^{12} 1$$

$$= 3 \cdot \frac{(12-2+1)(12+2)}{2} + (12-2+1)$$

$$= 3 \cdot 11 \cdot \frac{14}{2} + 11 = 27 \cdot 11 + 11 = 28 \cdot 11 = 292$$

$$\bullet 8+10+12+\dots+38 = \sum_{k=4}^{19} 2k = 2 \sum_{k=4}^{19} k = 2 \cdot \frac{(19-4+1)(19+4)}{2} = 16 \cdot 23 = 368$$

$$\begin{array}{r} 16 \\ 23 \\ \hline 48 \\ 36 \\ \hline 368 \end{array}$$