$$U_n = U_{n-1} + 4n + 1$$

$$S_n = \cancel{U_1} + \cancel{U_2} + \cancel{U_3} + \cdots + \cancel{U_{n-1}} + U_n$$

$$= U_0 + (4 \times 1) + 1 + \cancel{U_1} + (4 \times 2) + 1 + \cancel{U_2} + 4 \times 3 + 1 +$$

$$= 2 \qquad \cdots + U_{n-1} + 4n + 1$$

$$\underline{1 + 1 + 1 + \cdots + 1} = n$$
$$n \text{ fois}$$

$$(4 \times 1) + (4 \times 2) + (4 \times 3) + \cdots + 4n \qquad \text{Somme des}$$
$$\text{termes suite}$$
$$= \quad 4 + 8 + 12 + \cdots + 4n \quad \rightarrow \text{arithmétique}$$
$$\text{dernier} \qquad \qquad r = 4$$
$$= \frac{4 + 4n}{2} \times n$$
$$\text{1}^{er} \qquad \qquad \text{nombre de termes}$$
$$\text{terme}$$

$$\text{Donc } U_n = 2 + \frac{4 + 4n}{2} \times n + n$$

$$U_n = 2 + (2 + 2n) \times n + n$$

$$U_n = 2 + 2n + 2n^2 + n$$

$$\boxed{U_n = 2n^2 + 3n + 2}$$