

$$\begin{aligned}
4.10 \quad & u_1 + u_2 + u_3 + \dots + u_n = \\
& u_1 + (u_1 + r) + (u_1 + 2r) + \dots + (u_1 + (n-1)r) = \\
& n u_1 + r(1 + 2 + \dots + n-1) = \\
& n u_1 + r \cdot \frac{(n-1)n}{2} = \\
& n \cdot \frac{2u_1 + r(n-1)}{2} = \\
& n \cdot \frac{u_1 + (u_1 + r(n-1))}{2} = \\
& n \cdot \frac{u_1 + u_n}{2}
\end{aligned}$$