

A.1-1.

Find a simple formula for $\sum_{k=1}^n (2k - 1)$.

Answer.

According to the linearity property of summation,

$$\begin{aligned}\sum_{k=1}^n (2k - 1) &= 2 \sum_{k=1}^n k - \sum_{k=1}^n 1 \\ &= 2 \frac{n(n+1)}{2} - n \\ &= n^2\end{aligned}$$

Therefore, $\sum_{k=1}^n (2k - 1) = n^2$.

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