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Let P(n) = \sum_{k=1}^{n} 2k - 1. Prove the P(n) = n^2 Proof: we procede by induction For n = 1, P(1) = 1^2 Let P(n) = n^2, we demonstrate that P(n+1) = (n+1)^2 P(n+1) = P(n) + 2(n+1) - 1 \Rightarrow P(n+1) = n^2 + 2n + 1 \Rightarrow P(n+1) = (n+1)^2 Then: \forall n > 0, P(n) = n^2
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