Hint for Problem 152-b

In the equation $\sum_{j=0}^{n} n^j S(k, j) = n^k$, we might try substituting $x$ for $n$. However we don’t know what $\sum_{j=0}^{x} \cdot \cdot \cdot$ means when $x$ is a variable. Is there anything other than $n$ that makes a suitable upper limit for the sum? (Think about what you know about $S(k, j)$.)