We use induction.
When $n = 1$, the equation becomes $2 = 2^2 - 2$, obviously it is true.
Assume $n = k$, we have

$$\sum_{i=1}^{n} 2^i = 2^{n+1} - 2$$

When $n = k + 1$,

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

It satisfies the assumption.
Hence, it's proved true.