Name:	
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1. Show that $\sum_{i=1}^{n} (i+1)2^{i} = n2^{n+1}$ for all positive integers n.

- 2. Let n be a positive integer and A_1, \ldots, A_n be some sets. Let us define union of these sets as follows:

 - 1. $\bigcup_{i=1}^{1} A_i = A_1$, 2. $\bigcup_{i=1}^{k+1} A_i = (\bigcup_{i=1}^{k} A_i) \cup A_{k+1}$.

Show that $\bigcup_{i=1}^{n} [i] = [n]$.

3. Let Ω be some set. Consider $A_1, \ldots, A_n \subseteq \Omega$. Show that $\bigcup_{i=1}^n A_i = \{x \in \Omega : \exists i \in [n] \ x \in A_i\}$.