

Recursively defined sets

Just as functions are often defined recursively, so can sets be. Let's consider some recursively defined sets.

- ▶ $S_0 = \emptyset$
- ▶ $S_n = S_{n-1} \cup \{n\}$ for $n \geq 1$.

Questions:

1. What is S_1 ? (Answer: $S_1 = S_0 \cup \{1\} = \{1\}$)
2. What is S_2 ?
3. What is a closed form formula for S_n ?
4. Can you prove your formula correct for all n ?