## Some Big Ideas, Week 7

### Mar 6 – Mar 10, 2023

⊙ Review the notation given in the tables *Special Sets* and *Set Theory Notation* on page 27 of Levin, Discrete Mathematics, An Open Introduction, 3rd edition.

- You will sometimes see the the notation $A^c$ used for the complement of $A$, in addition to $\overline{A}$.
- And I'll often use ' $\mid$ ' rather than ':' in set notation: $\{x \mid x > 2\}$

⊙ **General structure to prove $A \subseteq B$ where $A$ and $B$ are sets:**

1. Let $a \in A$ be an arbitrarily chosen element of $A$.
2. Show that $a \in B$

⊙ **Definition:** If $A$ and $B$ are sets, then **$A$ equals $B$**, denoted $A = B$, iff $A \subseteq B$ and $B \subseteq A$.

Some of the resources I used in constructing the Big Ideas notes this semester are: Ernst: *Introduction to Proof via Inquiry-Based Learning*; Epp: *Discrete Mathematics with Applications, 4th edition*; Levin: *Discrete Mathematics, An Open Introduction, 3rd edition*; Sundstrom: *Mathematical Reasoning, Writing and Proof, Version 3*; and the notes of my colleague, Rachelle DeCoste at Wheaton.

Check the Tentative Weekly Syllabus for the specific sections relevant for this week.