Some Big Ideas, Week 7

Mar 4 – Mar 8, 2024

⊙ 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*** on the course webpage for the specific sections relevant for this week.