

Math 301, Spring 2025 — Homework 8

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Due April 18 at 5:00 pm

Instructions. This problem set contains problems mostly from Week 10 of class. The problem numbers refer to our textbook, *Understanding Analysis* by Stephen Abbott.

Problem 1. Please do the following textbook problems: Exercises 4.3.3, 4.3.6abc, 4.3.8ab, 4.4.1, 4.4.3, 4.4.4ab, 4.4.9a

Remark 1. If you use a theorem, please make sure to cite it using the textbook theorem numbering (eg. Theorem 4.3.4) or its name (eg. the Order Limit Theorem).

Remark 2. In Exercise 4.4.1, it will be helpful to note that $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$ for any $a, b \in \mathbb{R}$.