Math 540 Homework

- **Week 1 Homework**
  Chapter 1. 1, 4, 7, 8, 9, 10, 13

- **Week 2 Homework**
  Chapter 1. 17, 18, 19, 24

- **Week 3 Homework**
  No homework!

- **Week 4 Homework**
  Chapter 1. 25, 26, 30, 31
  Chapter 2. 1, 3

- **Week 5 Homework**
  Chapter 2. 4, 5, 10

- **Week 6 Homework**
  Chapter 2. 12, 13, 14

- **Week 7 Homework**
  Chapter 2. 15, 16, 17, 18, 19, 20, 21, 22, 26, 30

- **Week 8 Homework**
  Chapter 2. 32, 33, 34, 35, 38

- **Week 9 Homework**
  Chapter 2. 39, 44, 46, 51
  **Additional problems:** 1. Prove the monotone class lemma in Section 2.5.

- **Week 10 Homework**
  **Additional problems:** 1. Prove that

\[
\lim_{n \to \infty} \int_0^n \frac{\sin x}{x} \, dx = \frac{\pi}{2}.
\]

  Chapter 3. 22, 23, 24

- **Week 11 Homework**
  Chapter 3. 27, 31

- **Week 12 Homework**
  Chapter 3. 30, 33, 35, 37
  Chapter 6. 1

- **Week 13 Homework**
  Chapter 6. 7, 9, 10, 38