Exam 2 Information:

- Exam 2 will take place on Friday, April 17, from 10:30am to 12:30pm.
- The exam will cover selected topics from sections 8.1–8.9.

Bring to the Exam:

- Bring a graphing calculator to the exam. You will be at a disadvantage if you do not have one, and I cannot allow you to share a calculator with someone else during the test.
- Bring letter-sized piece of paper with whatever information you want on it. You may use both sides of the piece of paper.

Study Tips

- Review the homework assignments, Moodle quizzes, and worksheets from class. Make sure you understand anything that you missed previously.
- Read the summaries for each section (found online), and work the recommended problems from the summaries (which are listed below). Solutions to these problems are also found online.
- Go to the Math Study Room or come to my office if you have any questions.

Topics

- **Sequences:** You should be completely comfortable computing limits of sequences. You should also be able to write the general formula for a sequence.
  - Limits at Infinity: 1–22
  - 8.1 Summary: 1–18
- **Summation Notation:** The following problems include practice with writing series and/or power series using summation notation.
  - 8.2 Summary: 1–6
  - 8.6 Summary: 31–36
• **Geometric Series:** You should be able to recognize geometric series, determine the convergence or divergence of geometric series, and be able to find the sum of a geometric series.

  - **8.2 Summary:** 7–12, 15, 16, 19, 20, 31, 32

• **Series with Positive Terms:** You should know the following convergence tests: Test for Divergence, p-series, Limit Comparison Test, Comparison Test, Integral Test, Ratio Test, and Root Test.

  - **8.2 Summary:** 17, 18, 27, 28, 30
  - **8.3 Summary:** 1–9, 14, 15, 17, 18, 22–26, 29, 30, 35, 36
  - **8.4a Summary:** 5–12, 15–22, 29, 30, 32

• **Series with Negative Terms:** You should know the meaning of absolute convergence and conditional convergence. You should know the Absolute Convergence Test and the Alternating Series Test. You should be able to find the sum of Telescoping Series.

  - **8.2 Summary:** 21–26, 29
  - **8.4b Summary:** 1–26

• **Power Series:** You should be able to find the radius and interval of convergence of power series using the Root Test.

  - **8.5 Summary:** 8–18, 21, 22

• **Taylor Series:** You should be able to find Taylor series using the formula \( c_n = \frac{f^{(n)}(a)}{n!} \) and by modifying known Taylor series as in Section 8.6. You should have the Taylor series for \( e^x, \sin x, \cos x, \ln(1 + x) \), and \( \tan^{-1} x \) on your formula sheet. You should be able to write your answers using summation notation.

  - **8.6 Summary:** 1, 3, 5, 7, 9, 11, 18, 23–28, 31–42
  - **8.7 Summary:** 1, 2, 9–22

• **Applications of Taylor Series:** Taylor Series can be used to approximate the value of a function, to estimate the value of an integral, and to compute limits. You should know the Alternating Series Estimation Theorem, and be able to use it to approximate the sum of an alternating series to within a specified error. You should know L’Hopital’s rule.

  - **8.4b Summary:** 27–36
  - **8.9 Summary:** 1–8
  - **Section 4.5:** 7, 9, 13, 15, 17, 29