

Math 1B second midterm review sheet

Nov 1, 2009

Some things that you should know

The numbers in parentheses are the sections of the textbook where the corresponding topics are described. The topics in boldface are (in my opinion) those that you should review first — any topic below can be on the exam, but the boldface ones are likely to be used in several problems.

- **Direct comparison test** (11.4)
- **Limit comparison test** (11.4)
- Remainder estimate for the direct comparison test (11.4)
- **Alternating series test** (11.5)
- Remainder estimate for the alternating series test (11.5)
- **Absolute and conditional convergence** (11.6)
- Remainder estimate for absolutely convergent series (11.6)
- Ratio Test (11.6)
- Root Test (11.6)
- Strategy for testing series (11.7)
- **Power series** (11.8)
- Radius and interval of convergence of power series (11.8)
- Power series for $\frac{1}{1-x}$ (11.9)
- Differentiation and integration of power series (11.9)
- **Taylor and Maclaurin series** (11.10)
- Maclaurin series for e^x , $\sin x$, $\cos x$, and $(1+x)^k$ (11.10)

- Taylor's inequality (11.10)
- Approximate integration using power series (11.10)
- Multiplication and division of power series (11.10)
- Finding limits using power series (11.10)
- Approximating functions by Taylor polynomials (11.11)
- **Differential equations** (9.1)
- Solving initial-value problems given the general formula for the solution (9.1)
- Direction fields (9.2)
- Euler's method (9.2)
- Separable equations (9.3)
- Orthogonal trajectories (9.3)
- Mixing problems (9.3)