

Math 104 Homework 7 (Vaintrob)

Due Tuesday, 3/12

1 Reading Exercise 1

See 14.6 on page 98 (comparison test). Without looking, see if you can prove (ii) using the contrapositive to (i) for $b_n \geq a_n \geq 0$ (so assuming in addition both are positive, a minor assumption). Try using the monotonicity of the partial sums and part (i).

2 Reading Exercise 2

Look ahead at Definition 17.2. Say f is a continuous function defined on all of \mathbb{R} such that $|f(x)| < |x|$ (so for example $f(x) = x$ or $f(x) = \sqrt{|x|}$). Show that f is continuous at 0 using definition 17.1, then using definition 17.2 (hint: try $\epsilon = \delta$).

3 14.1

4 14.3

5 14.6

6 14.13

7 15.6

8 Extra credit: 16.9