

MATH 104, HOMEWORK #6

DUE THURSDAY, FEBRUARY 25

Remember, consult the Homework Guidelines for general instructions. Results from class, our textbook, and graded homework are fair game to use unless otherwise specified. You may also use ungraded homework results from previous problem sets.

GRADED HOMEWORK:

1. Ross, Exercise 12.12.
2. Ross, Exercise 14.6.
3. Using the Cauchy criterion directly (and none of the later tests for convergent series), show that one of the following series converges and one diverges. You may use whichever of the three versions is most convenient

$$\sum \frac{1}{n^2} \quad \text{and} \quad \sum (\sqrt{n+1} - \sqrt{n})$$

UNGRADED HOMEWORK:

Pay special attention to starred problems; they are usually classics we will use many times, often important theorems hidden in the exercises. Note we already did several of the Section 12 exercises together.

| Section | Exercises |
|---------|-------------------------------------|
| 12 | 1*, 2, 3, 4*, 5*, 6*, 7, 8*, 10, 14 |
| 14 | 1, 2, 3, 4, 5, 7, 8, 10, 13, 14 |

* Try doing Exercise 12.11 a different way than we did in class – take the book’s proof for the lim sup half and flip it to get the lim inf result, using standard tricks.