

MATH 104  
Homework 2 – Due February 7, 2017  
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A select number of these questions will be graded (although the \*starred\* questions are optional, and will not be graded). Feel free (and encouraged!) to work with your classmates on this homework and come and talk about them in office hours, but you **must** write up your own solutions. Indicate on your homework the set of people with whom you worked, if that set is non-empty.

1. Ross §5, page 30: Exercise 6
2. Ross §7, page 38: Exercises 2, 4
3. Ross §8, pages 44-45: Exercises 1a, 2e, 4, 5, 9\*
4. Ross §9, pages 54: Exercise 6
5. Let  $(a_n)$  be a sequence such that

$$a_n = \begin{cases} 1 & \text{if } n = 2^k \text{ for some } k \\ 0 & \text{all other } n \end{cases}$$

Show from the definition of convergence that  $(a_n)$  does not converge.