

## HOMEWORK FOR MATH 315 AS TAUGHT FALL 2009

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These are the homework problems assigned in Math 315, Fall 2009. The textbook was Stephen Abbott, *Understanding Analysis*, Springer-Verlag, New York, 2001.

- Homework 1 (due W 7 Oct., week 2):
  - Section 1.2 problems 1, 3, 6, 8, 10, 12.
  - Section 1.3 problems 2, 3, 5a, 6abc, 9abc.
  - Section 1.4 problems 1, 4, 5.
- Homework 2 (due W 14 Oct., week 3):
  - Section 1.3 problems 4, 5b.
  - Section 1.4 problem 6.
  - Section 2.2 problems 1ab, 2, 3, 4, 6.
- Homework 3 (due Tu 20 Oct., week 4):
  - Section 1.2 problem 5.
  - Section 1.3 problem 8.
  - Section 2.2 problems 1c, 7, 8.
  - Section 2.3 problems 1, 4, 6, 8.
- Homework 4 (due W 28 Oct., week 5):
  - Section 2.3 problems 3, 5, 7, 9, 10.
  - Section 2.4 problem 2.
  - Section 2.5 problems 1, 2, 3.
  - Section 2.6 problem 2.
- Homework 5 (due W 4 Nov., week 6):
  - Section 2.4 problem 3.
  - Section 2.6 problems 1, 5, 6b.
  - Section 2.7 problems 1 (your choice of a, b, c: just find a proof), 2b, 3.
  - Section 3.2 problems 1, 3, 4.
- Homework 6 (due W 11 Nov., week 7):
  - Section 3.2 problems 7, 9, 11, 12abc.
  - Section 3.3 problems 1, 4, 5bdef.
  - Section 3.4 problems 5, 7. (In 7b, only do the part about connectedness.)
- Homework 7 (due F 20 Nov., week 8):
  - Section 3.3 problems 2, 7abd.
  - Section 3.4 problem 6.
  - Section 4.2 problems 1ab, 2 (give a reason), 3, 5bc. (In 5c do only the proof using sequences.)
  - Section 4.3 problems 1a, 2a, 5.
- Homework 8 (due W 25 Nov., week 9)
  - Section 4.2 problem 9.
  - Section 4.3 problem 8.

- Section 5.2 problems 1, 2ab, 4, 6. (In Problem 6, note that for the first part of 6a you only need  $g'(a) < 0$ , and for the second part of 6a you only need  $g'(b) > 0$ . In 6a, you don't even need differentiability anywhere else.)
- Section 5.3 problems 1, 3.
- Homework 9 (due F 4 Dec., week 10)
  - Section 5.3 problems 4a, 7, 8.
  - Section 6.2 problems 1, 2, 3, 6.
  - Section 6.4 problems 1, 2, 6.