MA 30100 Assignments

Assignment 1:

Read Chapter 1 and the Guidelines for Written Work in the notes. The id is student and the password is 1492

Do : Chapter 1, p. 14: 1(a), 3, 5, 11(b), 12(b)

Assignment 2:

Read p. 19-26

1. Grade your work on Assignment 1. The solution, together with grading instructions, is posted on the class web page.

You will be graded on how many of your mistakes you find. The grade you give yourself will not be recorded.

Also do:

Chapter 1, p14: 1(b), 12 (c)

Chapter 2, p. 29: 1(a), (k) (See Example 5, p. 25)

In the examples in the notes, I tend to make comments to the effect that "we may reverse the above sequence of inequalities." In these exercises I want to actually see the reverse argument.

Assignment 3:

Chapter 1, p.14, 12(d)

Chapter 2, p.29, 1(c),(l) (Ans. $(-\infty, -1) \cup (-2/3, \infty)$), 6(a), 9(ii)

Chapter 3, p.48, 2(a), (e)

Assignment 4:

Chapter 1, p.14, 13(a), (c)

Chapter 2, p. 29, 1(g) Hint: Take cos of each side. 6(b), 9(iii)

Chapter 3, p.48 2(m), 3(a), (b), (c)

Assignment 5:

Read p. 42-46 and p. 53-61

Chapter 2, p. 29,

6 (d), (e). Note: In (e) you will need Axiom (Z) on p. 7 of the notes.

Chapter 3, p.48

3(e), (f), (g), 7(a), (g), (i)

Chapter 4, p.67

1, 2(a)

Assignment 6:

Read p. 62-67

Chapter 3, p.48

3(i), 7(d), 9(b) (In a way, this is similar to Example 8, p. 45), (c) (See Example 10, p. 47)

Chapter 4, p.67

2 (b), (c)

Assignment 7 (Turn in on Tuesday 2/7):

Chapter 4, p.67

2 (f) (See Example 7, p.62), (p), (q), 14(b)

Assignment 8:

Chapter 4, p.67

2(g), (r), 11(d)(Skip (i) and (ii)), 14(a), 24

Chapter 5, p. 80

3(a)

Assignment 9:

Chapter 4, p.67.

2(m), 11(g)(Do not do parts (i), (ii), and (iii)), 33

Chapter 5, p. 80

1(a), 5

Assignment 10:

Chapter 4, p.67.

2(n), 32 Note: You cannot do this problem by quoting Lemma 2 on p. 76. Why not?, 34

Chapter 5, p. 80

1(b), 6

Chapter 6,p.92

1(a)(Prove your answer. Do not use Proposition 2 on p. 85.), (b) (No proof or explanation required), 1(k), 2(k) Do not use Proposition 2 on p.

85.1

Assignment 11:

Chapter 4, p.67.

36, 37

Chapter 6. I still did not discuss $GLB = inf$ and min in class. Hence you will need to read the material on p. 88 including Example 4 and then read Example 3 on p. 85-86 before doing this assignment.

p. 92

1(n),(q), 2(n), (q) , 14

Assignment 12:

Read p. 97-105

Chapter 4, p.67

38

Chapter 6, p.92

15

Assignment 13:

Chapter 7 p. 113, 1, 2, 5(a), 9(c),

Assignment 14 :

Chapter 7, p.113

3(d),(e), (g) 5(b), 25(a), (b)(prove your answers),13 (Hint: Let u=ln x, du=(1/x)dx)

Assignment 15:

Read p. 110-113, p. 123-126

Chapter 7, p.113, 3(f), (h),(i), 7(a),15 (Do the $\pm 10^{-2}$ part), 17 (This does not use the integral test. Rather it uses Theorem 6 with $b_n = 1/2^n$.)

Chapter 8, p.129, 1(a), (c), (d)

Assignment 16: (Due 3/23):

Chapter 7, p.113, 3(k) (See Example 8, p. 110)

Chapter 8, p.129, 1(e), (f), (k), 12

Assignment 17: (Due 3/30)

Read p. 133-137

Chapter 8, , p.129

3(d),(h) Answer+reasons but no proof, 13

Chapter 9, p. 146

1(a), 7(a)

Also Do:

For which values of p is the following series: (a) Divergent? (b) Conditionally convergent? (c) Absolutely convergent? You must justify all of your answers.

$$\sum_{1}^{\infty} (-1)^n \frac{\sqrt{n^5+1}}{2+n^p}$$

Assignment 18:

Read p. 138-146

Chapter 9, p. 146

10(b), 11(b), 13(b), 14, 19(a), (b)

Assignment 19

Read: p. 153-160

Chapter 9, p. 146

11(c), 19(d), 21(a) See Example 3, p. 143.

Assignment 20:

Read Chapter 10.

Chapter 9, p. 146

18,22

Chapter 10, p. 167

3(iii), (v), , 6(g)

Assignment 21:

Read p. 175-183.

Chapter 10, p. 167

6(i), (k) , 9(a) (See Example 5 on p.165)

Assignment 22:

Chapter 10, p. 167

6(c), (h), (j), 9(d)

Assignment 23:

Chapter 10: p. 167 17, 23

Chapter 11:, p. 185 1,2 (Hint: Use L'Hopital's rule to find the limit), 5, 10, do not find x (Use Theorem 4, p. 184), 13 do not find x (Use Theorem 4, p. 184)

Assignment 24:

Chapter 10: p. 167, 18, 19 (The proof is very similar to the proof of Theorem 3 on p. 180. The difference is that in Theorem 3 $f(x)$ is assumed to be continuous at $x = a$ while in Exercise 18 $f(x)$ might not even be defined at $x = a$.)

Chapter 11: p.185, 7, 8 (This was discussed in class. I want you to finish the discussion. Note that no proofs are required. The typos in the formulas on p. 186 have been corrected in the latest online version of the notes.), 14