

Analysis Lab 3

Topic: Introducing the Formal Definition of Convergence

Guidelines for Lab Report

For this lab, submit a report according to guidelines given below.

1. For Section 2.1, enter your answers to Questions 1-4 in the table provide on page 2. Enter your answers to Question 5 in the column marked Q5 on the table on page 2. Enter your answers to Question 6 in the column marked Q6 in the table on page 2.
2. For Section 2.2, enter your answers to Question 1 in the table provide on page 2. Enter your answers to Question 2 in the column marked Q2 in the table on page 2. Enter your answers to Question 3 in the column marked Q3 in the table on page 2.
3. For Section 2.3, submit your answers and explanations for Question 1-4.
4. For Section 3.1, submit your responses to Questions 1-3, and provide your version of the “new definition,” as instructed in Question 4.
5. For Section 3.2, fill in the blanks provided on page 5 of this guide, and answer the questions at the end of the section.
6. Complete the Questions for Reflection as assigned by your instructor. Write your response to each question on a separate sheet(s), and attach to the rest of this report.

2 Using Examples to Enhance Understanding

2.1 Example Set 1

Sequence	Identification of those n for which $a_n \in (L - \epsilon, L + \epsilon)$				Q5	Q6
	$\epsilon = .5$	$\epsilon = .2$	$\epsilon = .1$	$\epsilon = .05$		
Sequence 1 $L = 0$						
Sequence 2 $L = 2$						

2.2 Example Set 2

Sequence	Identification of those n for which $a_n \in (L - \epsilon, L + \epsilon)$			Q2	Q3
	$\epsilon = .2$	$\epsilon = .1$	$\epsilon = .05$		
Sequence 3 $L = 1$					
Sequence 4 $L = 0$					
Sequence 5 $L = 0$					
Sequence 6 $L = 0$					

2.3 Example Set 3

In the space provided, write your answers to Questions 1-4. Attach additional sheet(s), if necessary.

3 Critical Thinking Questions

3.1 Formulating the Definition

In the space provided, answer Questions 1-3 and provide your version of the “new definition,” as instructed in Question 4. Attach additional sheet(s), if necessary.

3.2 Comparison Between the Definition and Intuition

Terms a_1 to _____ are .2 or more units from $L = 2$.

Terms _____ to _____ are less than or equal to .2 units from $L = 2$, but are also .1 or more units away from $L = 2$.

Terms _____ to _____ are less than or equal to .1 units from $L = 2$, but are also .05 or more units from $L = 2$.

Terms _____ to _____ are less than or equal to .05 units from $L = 2$, but are also .01 or more units from $L = 2$.

Terms _____ to _____ are less than or equal to .01 units from $L = 2$.

In the remaining space, answer the questions posed at the end of the section. Attach additional sheet(s), if necessary.