Analysis Lab 4

Topic: Experience with the Definition of the Limit of a Sequence

Guidelines for Lab Report

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

1. Fill in the entries of the table from Section 2 on page 2 of this guide. Submit your responses to Questions 2-4 in the space provided.

2. For Section 3, submit your answers to Questions 1-4.

3. For Section 4, find the formula for N for each sequence, and enter this into the table, along with the specific value of N specified in Question 3. Submit a formal proof for each sequence.

4. Complete the Questions for Reflection as assigned by your instructor. Write your response for each question on a separate sheet(s), and attach to the rest of this report.

2 Using Examples to Enhance Understanding

Fill in the cells in the table below according to the directions provided in 1(a)-(d) of Section 2 of the lab.

Sequence	Limit or L	N value for $\epsilon = .2$	N value for $\epsilon = .1$	N value for $\epsilon = .05$	Test n	$\|s_n - L\|$ for test n	Is $\|s_n - L\| < .05$?
$(a_n)_{n=1}^{\infty}$							
$(b_n)_{n=1}^{\infty}$							
$(c_n)_{n=1}^{\infty}$							
$(d_n)_{n=1}^{\infty}$							
$(e_n)_{n=1}^{\infty}$							
$(f_n)_{n=1}^{\infty}$							

In the space provided, submit your answers to Questions 2-4. Use additional sheets(s), if necessary.

3 An Algebraic Way to Find N

Use the space provided below to answer Question 1-4 at the end of this section. Use additional sheet(s), if necessary.

4 Critical Thinking Questions

Enter the formula for N in Column 1. Use the formula to find a value of N for $\epsilon = .05$, and enter this in Column 2.

Sequence	Formula for N value	N for $\epsilon = .05$
$(a_n)_{n=1}^{\infty}$		
$(b_n)_{n=1}^{\infty}$		
$(c_n)_{n=1}^{\infty}$		
$(d_n)_{n=1}^{\infty}$		
$(e_n)_{n=1}^{\infty}$		
$(f_n)_{n=1}^{\infty}$		

Write a formal proof for each of the sequences (a_n), (b_n), (c_n), (d_n), (e_n), and (f_n). Attach additional sheet(s), if necessary.