

Analysis Lab 5

Topic: Experience with the Negation of the Definition of Convergence

Guidelines for Lab Report

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

1. For Section 2, submit your answers to Questions 1-3, as instructed on pages 2-3 of this report guide.
2. For Section 3, submit your answers to Questions 1-5, as instructed on pages 4-5 of this report guide.
3. 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

Each table corresponds to one of the sequences you are asked to consider in Section 2. The rows consist of the values of N for which you are asked to determine whether $|a_n - \text{“proposed” } L| < \epsilon$ is true for all $n > N$ and the given value of ϵ . The columns deal with the values of ϵ , .5, .4, .3, .1, that you are asked to consider. Fill in each cell for each sequence.

1. Sequence (a_n)

N	$\epsilon = .5$	$\epsilon = .4$	$\epsilon = .3$	$\epsilon = .1$
$N = 5$				
$N = 10$				
$N = 50$				
$N = 100$				
$N = 500$				

2. Sequence (b_n)

N	$\epsilon = .5$	$\epsilon = .4$	$\epsilon = .3$	$\epsilon = .1$
$N = 5$				
$N = 10$				
$N = 50$				
$N = 100$				
$N = 500$				

3. Sequence (c_n)

N	$\epsilon = .5$	$\epsilon = .4$	$\epsilon = .3$	$\epsilon = .1$
$N = 5$				
$N = 10$				
$N = 50$				
$N = 100$				
$N = 500$				

3 Critical Thinking Questions

Answer each question in the space provided below. Attach additional sheet(s), if necessary.

1. Fill in the cells of the table, as indicated in Section 3 of the lab.

Sequence	$\epsilon = .5$	$\epsilon = .4$	$\epsilon = .3$	$\epsilon = .1$
$(a_n)_{n=1}^{\infty}$				
$(b_n)_{n=1}^{\infty}$				
$(c_n)_{n=1}^{\infty}$				

2. Submit your response in the space provided.

3. Submit your response in the space provided.

4. State the negation of the definition.

5. Submit a proof for each part.