Math 301 Homework
Donnay, Fall 2009

Assignment #8: Due Wednesday, Sept 30th at the start of class.

S1. Prove (via \( \epsilon \) and \( N \)) that the constant sequence \( s_n = 2 \) for all \( n \in N \) converges to 2.

Morgan: Ch. 3

#6 Using the definition of convergence, prove that this sequence does not converge to 0. Extra credit: Prove that for any number \( L \in R \), the sequence does not converge to \( L \). This shows that the sequence does not converge.

# 7. First divide by the highest power. Then use the limit laws to justify every step you take in determining the limit. You are only allowed to use the following fact which we have proven rigorously: \( \lim_{n \to \infty} \frac{1}{n} = 0 \).

#8. Justify your answer but do not give an \( \epsilon \) proof.

#13 See if you can do this problem without looking back at the proof we did in class.

Assignment #9: Due Friday, Oct 2 at the start of class.

S1. Redo one problem from last week’s assignment that you did not master.

Morgan: Ch. 3

#9. Justify your answer but do not give an \( \epsilon \) proof.

#14. We have started this proof in class.

#15

#18.