

## Homework Assignment for Week 02

1. Section 2.3: Try to write down the  $\varepsilon - \delta$  definition of 'Showing  $L$  is not a limit' in p84 without the decomposition steps shown in class. If unsuccessful, review the decomposition step by step and then check your answer with the one given on p84. Then do problem 57(b).
2. Section 2.4: Problems 26, 34, 42
3. Section 2.5: problems 64, 67, 77 (Need not graph it).
4. Section 2.6: problems 92, 93.
5. Read Definition of the limits p87, p104 and p110. Then define the following limits using  $\epsilon$  and  $\delta$ :

**a.**

$$\lim_{x \rightarrow 0^+} f(x) = \infty$$

**b.**

$$\lim_{x \rightarrow \infty} f(x) = -\infty$$

Then take  $f(x) = 1/x$  for (a) and  $f(x) = -x^2$  for (b), respectively, check that (a), (b) actually holds using the  $\epsilon - \delta$  argument.