

## MATH 121 Section 02 Homework 1

Below is a list of selected problems from Stewart's Calculus. I will add more to this list as the week progresses. I will no longer add problems after Friday January 18, and you will have until the following Friday January 25 to finish the problem set. The first problems are suggested exercises and you do not need to turn them in. The latter set you should write up carefully and neatly as they will be graded. It is in your best interest to work all of the problems. All problems from the homework are fair game on the exams! You are encouraged to work in groups, but you must write up your own solutions. I will be available during office hours for help.

### 1 Suggested Problems

§2.2) 1, 3, 5, 7, 9, 13, 15, 25, 27, 29

§2.3) 1, 2, 3, 7, 9, 10, 11, 13, 15, 17, 19, 23, 25, 27, 47

§2.4) 1, 3, 4, 11, 13, 39

### 2 Required Problems

- 1) Write down (copy) the definition of a limit from §2.2 in the text. Rewrite the definition in your own words and include illustrations.
- 2) Let  $p(x) = c_n x^n + c_{n-1} x^{n-1} + \cdots + c_1 x + c_0$  be a polynomial. Use the limit laws to show that

$$\lim_{x \rightarrow a} p(x) = p(a).$$

- 3) Evaluate the following limit:

$$\lim_{h \rightarrow 0} \frac{\sqrt{1+h} - 1}{h}.$$

- 4) Using the  $\varepsilon$ ,  $\delta$  definition of a limit, prove

$$\lim_{x \rightarrow a} mx + b = ma + b,$$

where  $a$ ,  $m$ , and  $b$  are constants.