

## Homework Assignment for Week 07

Assigned Oct 27, 2011.

1. Section 4.4: Problems 23, 29, 35, 41, 58 (Just graph it).
2. Section 4.5: Problems 3, 5, 13, 23, 25, 26, 27(a), 33, 36.
3. Section 4.6: Problems 13, 23(b), 25, 26, 28, 29, 33.
4. Read and compare the difference between Intermediate Value Theorem and Mean Value Theorem.
5. Suppose  $f$  is continuous on  $(-1, 1)$ , differentiable on  $(-1, 0) \cup (0, 1)$  and  $\lim_{x \rightarrow 0} f'(x)$  exists. Show that  $f'(0)$  exists.
6. Suppose  $f$  is continuous on  $[a, b]$ , differentiable on  $(a, b)$  and  $f(a) < f(b)$ . Show that there are infinitely many  $x \in (a, b)$  such that  $f'(x) > 0$ .