Homework Assignment for Week 06

1. Section 3.11: problems 9, 11, 17, 63, 64.

2. The error formula for linear approximation $L(x, x_0)$ (we denote it as $L(x)$ in class) is not mentioned explicitly in the textbook till a later Chapter. Just memorize it for now:

$$f(x) - L(x, x_0) = \frac{1}{2} f''(c)(x - x_0)^2$$

   where c lies between x and x_0. As a consequence, we have an error bound

$$|f(x) - L(x, x_0)| \leq \frac{1}{2} \left(\max_{c \text{ between } x \text{ and } x_0} |f''(c)| \right) (x - x_0)^2$$

   Use this formula to give an estimate on the error of linear approximation for problem 17 (b).

3. Section 4.1: problems 27, 35, 39, 59, 77, 93.