CS 323E **Homework 3** **Due: Sept 14, 2000**

1. (10 points) Show that the derivative of $f(x)$ may be approximated as

$$C_h = \frac{f(a+h) - f(a-h)}{2h},$$

such that C_h satisfies:

$$|C_h - f'(a)| \quad \leq \quad \frac{h^2}{6} M_3$$

if

$$|f'''(x)| \quad \leq \quad M_3 \qquad \text{for all } x.$$

2. (0 points) Read Section 1.5 from the textbook. The next question requires this reading.

3. (10 points) Do P.1.5.1 from textbook.