Homework Assignment 2.

Given Sep 25, due Oct 07.

1. Chap 2: problems 37, 38, 39, 41.

2. Is the following statement true or false?

If the function $y = f(x)$ defined on $[a, b]$ takes any value between $f(a)$ and $f(b)$, then $f(x)$ is continuous on $[a, b]$.

3. Read 3.1: Examples 6, 8, 10; 3.2: Example 13; 3.3: definition for average rate of change (velocity) and intstant rate of change (velocity).

4. Section 3.1: problems 35, 40, 49.
Section 3.2: problems 18, 22, 24, 26, 28, 32, 34, 38, 54, 58, 68, 69.
Section 3.4: problems 19, 20, 27, 28, 53, 54.

5. Show (and memorize) that

$$\frac{d}{dx}\begin{vmatrix} f(x) & g(x) \\ h(x) & k(x) \end{vmatrix} = \begin{vmatrix} f'(x) & g(x) \\ h'(x) & k(x) \end{vmatrix} + \begin{vmatrix} f(x) & g'(x) \\ h(x) & k'(x) \end{vmatrix}$$
$$= \begin{vmatrix} f'(x) & g'(x) \\ h(x) & k(x) \end{vmatrix} + \begin{vmatrix} f'(x) & g'(x) \\ h(x) & k(x) \end{vmatrix}$$

using product rule. What is the corresponding formula for a 3 by 3 determinant?