Homework Assignment for Week 8

Assigned Nov 03, 2005

1. Section 6.6: problems 18, 22, 28, 29, 52, 54, 55.

2. Section 6.7: 7, 8, 12, 17(a).

3. Cauchy's Mean Value Theorem
   Prove the following variance of the Mean Value Theorem:
   Suppose f and g are continuous on $[a, b]$ and differentiable on (a, b), then there exists $c \in (a, b)$ such that
   $$\begin{vmatrix} f(b) - f(a) & f'(c) \\ g(b) - g(a) & g'(c) \end{vmatrix} = 0.$$
   Hint: Apply standard Mean Value Theorem to
   $$F(x) = \begin{vmatrix} f(b) - f(a) & f(x) - f(a) \\ g(b) - g(a) & g(x) - g(a) \end{vmatrix} \quad \text{on } [a, b].$$