B-14-1 Calculus
Fall 1997
Prof. H. Riecke

Problem Set 7 October 31, 1997

1. The Mean Value Theorem

Read chapter 4.3 and do problems 2, 5, 9, 10, 25, 29, 33, 39, 57, **36, 40**.

E.6 Consider the function

$$f(x) = \begin{cases} 2x^{1/2} & 0 \leq x \leq 1 \\ x - 1 & 1 < x \leq 2 \end{cases} .$$

From a superficial reading of the mean value theorem one could conclude that $f'(c) = 1/2$ for some $0 < c < 2$. Why? Why not? What is going on?

2. The First-Derivative Test

Read chapter 4.4 and do problems 1, 17, 24, 27, **14, 44**.

3. Simple Curve Sketching

Read chapter 4.5 and do problems 1, 3, 5, 15, 39, 47, **36, 42**.

4. Higher Derivatives

Read Ch. 4.6 and do problems 1, 5, 8, 11, 12, 21, 25, 42, 75, 85, 87, 89, **76**.

Hand in the bold-faced problems on Friday in class.