

Math 3210-1 HW 8
Due Tuesday, August 3, 2004

Problems with only a number listed, such as 1.1, are to be found in *Elementary Analysis*, by Kenneth A. Ross.

The Riemann Integral

Exercises 32.2, 32.5 (specify the sets S and T and explain very briefly why this completes the proof of the theorem), 32.7, and 32.8.

Properties of the Riemann Integral

Exercises 33.3, 33.4, 33.9, and 33.13.

The Fundamental Theorem of Calculus

Exercises 34.1, 34.2 (Hint: Use L'Hôpital's Rule), 34.3, 34.5, 34.6, 34.7, 34.10, 34.11, and 34.12.

1. Let $f : [0, 1] \rightarrow \mathbb{R}$ be a continuous function with continuous second derivative f'' , and $f(0) = f'(1) = 0$. Prove that if $\int_0^1 f(x)f''(x) dx = 0$, then $f \equiv 0$. (Hint: Integration by parts).