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 $f : [0, 1] \to \mathbb{R}$ 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).