Math 524 Autumn 2023

Homework 7 **Due Friday, December 8**

1. Folland Page 100, Problem 23.

2. Folland Page 100, Problem 26.

3. Folland Page 107, Problem 28.

4. Folland Page 108, Problem 31.

5. Folland Page 108, Problem 33.

Extra credit problem: Suppose that a real-valued function f is defined on an open interval $I \subset \mathbb{R}$, and that it is differentiable at every point $x \in I$. Show that if the function $f'(x)$ is Riemann integrable on I, then for all $a, b \in I$ with $a < b$, the following holds

$$f(b) - f(a) = \int_a^b f'(x)\, dx$$

Hint: you need to use the mean-value theorem.