Math 185—Introduction to Complex Analysis
Haiman, Summer 2014

Problem Set 4
Due Monday, July 14

Exercises from the textbook:

30.4, 30.7, 30.10
33.6, 33.9, 33.11
34.1, 34.5
36.8
38.11
40.2
42.4
43.5
46.1, 46.3, 46.8, 46.13
47.5
49.3
53.4

Additional problems:

1. Explain why the result of Exercise 46.3 does not contradict the Cauchy-Goursat theorem.

2. Use the result of Exercise 46.13 and the theorem on antiderivatives in §48 to prove that there there can be no function $f(z)$ such that $f'(z) = 1/z$ for all $z \neq 0$. (This is one reason why any candidate for a complex logarithm function $\log(z)$ must be multiple-valued.)