

MATH 3851 Homework Assignment 6 (due THURSDAY, February 27th; note the change, and note the new second extra problem below!)

Textbook problems:

Section 43: (p. 123-124) 5

Section 46: (p. 132-135) 1(b), 3, 5, 7

Extra problem 1: Find $\int_{\Gamma} \frac{1}{z} dz$ where Γ is the contour consisting of line segments from $-1 + i$ to $-2 - i$, then from $-2 - i$ to $2 - i$, then from $2 - i$ to $1 + i$. (Hint: you can use antiderivatives here, if you can find an antiderivative of $\frac{1}{z}$ on a domain D containing Γ . This should probably involve a log, but which branch of log should be used...?)

Extra problem 2: What is $\int_{\Gamma} \frac{1}{z^2} dz$, where Γ is the circle of radius 6, centered at $3+4i$, and traversed clockwise? (Hint: you don't actually need to parametrize this path...)