

**MA/PHY507 Spring 2013**  
**Problem Set 3**  
**DUE: Friday, 1 February 2013**

1. Do the following contour integrals:

(a)

$$\int_{\gamma} z^2 dz, \quad \gamma(t) = e^{it} \sin^3 t, \quad 0 \leq t \leq \pi/2.$$

(b)

$$\int_{\gamma} y dz,$$

where  $\gamma$  joins 0 to  $i$  and then  $i$  to  $i + 2$ .

2. Arfken, section 11.2, page 477, problem 11.2.10 a).

3. Arfken, section 11.3, page 485, problems 11.3.4, 11.3.6, and 11.3.7.