

## Math 421 Problem Set 6 (revised 11/9/06) Fall, 2006

**Due: Friday, Nov. 10**

**Problems #9–12, originally on this set, have been postponed until Set 7.**

**Note:** It's OK to use MATHEMATICA to do basic computations (including derivatives) and algebraic simplifications involving real or complex numbers. It's even OK to use MATHEMATICA to calculate values of the principal logarithm  $\text{Log}$ . But of course whenever you do such a calculation that involves *complex* numbers, be sure you know how to do it yourself with paper and pencil! Whenever you use MATHEMATICA you should include printed output or include in your written work the expressions you evaluated.

1. Do page 161, Exercise 4 (e).
2. Do page 162, Exercise 18 (b). Also draw the given set and its image by using `Cardano3` (or, for a little partial credit, by hand).
3. Do page 168–9, Exercise 1 (b) and (h).
4. Do page 169, Exercise 3 (b) and (d).
5. Do page 169, Exercise 6; also calculate  $f'(z)$  there.
6. Do page 170, Exercise 12 (a).
7. Do page 175, Exercise 2 (a) and (e). In each part, find both the set of all values *and* the principal value.
8. Do pages 175–6 Exercise 4 (b).