

MATH 185-1: Complex Analysis

Homework #3

Due February 11, 2016

All problems are from Gamelin, *Complex Analysis*, unless stated otherwise. If you use an exercise that has not been shown on a previous assignment or in class, prove it first before applying it.

1. Exercise II.4.5
2. Exercise II.4.7 (Hint: what does the multivariable change of variables formula say?)
3. Exercise II.5.1(b)(c)(f)
4. Exercise II.5.4
5. Exercise II.5.7
6. Exercise II.6.1(a)(c) (see the discussion and example on p.61)
7. Find a conformal map from the first quadrant $\{z : \operatorname{Re} z > 0, \operatorname{Im} z > 0\}$ to the lower half plane $\{z : \operatorname{Im} z < 0\}$.
8. Exercise II.6.9