

MATH 950, FALL 2015

Homework 3 - due Monday, November 9

- **Problem 1 - 5 points**

Problem 3, section 4.1 McOwen book, page 110.

- **Problem 2 - 5 points**

Problem 4, section 4.1 McOwen book, page 110.

- **Problem 3 - 5 points**

Problem 3, section 4.2 McOwen book, page 125.

- **Problem 4 - 5 points**

Problem 6, section 4.2 McOwen book, page 125.

Hint: The transformation $T(x, y) = (x^2 - y^2, 2xy)$ maps the first quadrant onto the upper half-plane \mathbf{R}_+^2 . Also, if $v(x, y)$ is a harmonic function, then $u(x, y) = v(T(x, y))$ is harmonic as well.

- **Problem 5 - 5 points**

Problem 4, section 4.3 McOwen book, page 131.

- **Problem 6 - 5 points**

Problem 3, section 4.4 McOwen book, page 137.