UNIVERSITÄT DES SAARLANDES
FACHRICHTUNG MATHEMATIK
Dr. Roland Friedrich
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Assignments for the lecture *Complex Analysis II*
Winter term 2017/2018

Assignment 6
for the tutorial on *Tuesday, **January 23, 2018**, 4:15 pm* (in Seminar Room 10)

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Problem 1. Let $(\Omega, \mathcal{F}, \mathbb{P})$ be a probability space and $\mathcal{G} \subset \mathcal{F}$ a sub-σ-algebra. Let $X, Y \in L^1(\mathcal{F}, \mathbb{P})$ with $XY \in L^1(\mathcal{F}, \mathbb{P})$ and assume that X is also $\mathcal{G}$-measurable. Show that $\mathbb{E}[XY|\mathcal{G}] = X\mathbb{E}[Y|\mathcal{G}]$.

Problem 2. Understand and reproduce the proof of the one-dimensional Itô formula.

Problem 3. Check in detail the complex Itô formula.