

Math 4150/6150, Homework #3, Due date: 10/30/2018

- **Suggested problems:** 4.1, 4.2, 4.3, 4.7, 4.8
- **Required problems:** 4.1(a), 4.2(b), 4.4, 4.7(c), 4.8(b), 4.10, 4.13, 4.14, 4.25, 4.29, 4.33, 4.34, 4.28, 5.1(d), 5.4, 5.13, 5.14, 5.18, 5.20.

Additional Required Problems:

1. If $\sigma(t)$ is a reparametrization of a smooth curve $\gamma(t)$, then $\int_{\gamma} f = \int_{\sigma} f$.
2. Given two smooth curves $\gamma_1(t)$, and $\gamma_2(t)$ for $t \in [a, b]$, and $\gamma_1(b) = \gamma_2(a)$. Give a parametrization of $\gamma_1\gamma_2$, the concatenation of the two paths.