

**MATH 202: VECTOR CALCULUS**  
**READING QUESTIONS FOR WEDNESDAY WEEK 11**

**Reading assignment.** CAES §§9.9–9.10.

*Problem 1.* Let  $\zeta = xy \, dx \wedge dy$  and let  $T : \mathbb{R}^2 \rightarrow \mathbb{R}^2$  be the coordinate change  $T(u, v) = (u^2, u + v)$ . Compute  $T^*\zeta$ .

*Problem 2.* What does Theorem 9.10.2 say about  $\int_{T \circ \Phi} xy \, dx \wedge dy$  where  $T$  is as in Problem 1 and  $\Phi : D \rightarrow \mathbb{R}^2$  is a 2-surface in  $\mathbb{R}^2$ .