Change of Variables for multiple variables

Reading

Sections 16.6

Problems

- Practice Problems 16.6: 3, 5, 7, 9, 10, 11, 15, 16, 18, 21, 22, 33
- Problems to turn in 16.6: 8, 14, 30, 34
- Optional 16.6: 38, 39

Topics to know

1. Maps from $\mathbb{R}^2$ to $\mathbb{R}^2$
2. Example of linear map based on two vectors
3. Understanding non-linear maps (example 3)
4. The Jacobian determinant for a map, examples
5. Change of Variables formula for integrals (theorem 2)
6. The polar coordinates formula is a special case (example 5)
7. Example of calculating integral over a parallelogram (example 6)
8. Example 7 (non-linear maps)