

## Math 417: Homework 11

Due Wednesday, December 6, 2023

1. (5 points) Goodman, exercise 5.4.1. *Hint:* Use the result of exercise 2.7.11.
2. (5 points) Goodman, exercise 5.4.5.
3. (10 points) Goodman, exercise 5.4.6. The homomorphisms  $\varphi_1, \varphi_2, \varphi_3$  are the ones given on page 261.
4. (5 points) Goodman, exercise 5.4.8.
5. (5 points) Goodman, exercise 5.4.9.
6. (5 points) Show that if  $n$  is an odd number, then  $D_{2n}$  is isomorphic to  $D_n \times \mathbb{Z}_2$ .
7. (5 points) Goodman, exercise 5.6.9.