

Math 31 Homework 6

Due August 10, 2018

1. Chapter 17, part G
 - (a) Exercise 1
 - (b) Exercise 2
 - (c) Let R_1, R_2, \dots, R_n be rings. Use part (a) to show that $R_1 \times R_2 \times \dots \times R_n$ is a ring.
2. Chapter 18, exercise B1.
3. Chapter 18, part D
 - (a) Exercise 4
 - (b) Exercise 5
4. Let R be a commutative ring with unity and J a proper ideal of R . Show that R/J is a commutative ring with unity.
5. Let J be a proper ideal of a ring R and let $b \in R$ but $b \notin J$. Define $B = \{br + j : r \in R, j \in J\}$. Prove that B is an ideal of R that properly contains J .
6. Chapter 19, exercise F3.