MATH 3360 Foundations of Algebra, Spring 2019

Homework 8 - Due in class Thursday, 18 April 2019

1. Let R be the set of real numbers $\mathbb{R}$, with the following operations:

$$a \oplus b := a + b + 2;$$

$$a \otimes b := ab + 2a + 2b + 2.$$

for all $a, b \in \mathbb{R}$.

(a) Is $(R, \oplus, \otimes)$ a ring?

(b) Is R commutative?

(c) Does R have an identity?

2. Section 6.1: Q2

3. Section 6.1: Q3

4. Section 6.2: Q7

5. Section 6.2: Q8

6. Section 6.2: Q9

7. Section 6.3: Q8

8. Section 6.3: Q20

9. Section 6.3: Q21

10. Section 6.3: Q22