
MATH 4360 Foundations of Algebra, Fall 2019

Homework I - Due in class Thursday, 5 September 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?

2-10. The following nine questions from the book:

Section 6.2: Q7, Q8, Q9

Section 6.3: Q8, Q20, Q22

Section 7.2: Q1, Q2, Q10