

Instructor: Leo Goldmakher

University of Toronto Scarborough  
Department of Computer and Mathematical Sciences

## MATA31 – Calculus I for Mathematical Sciences

### Problem Set 3 (due the week of October 15th – 19th)

At the top of your assignment, please write your full name and student number. Also, please copy (by hand) the following statement onto the top of your assignment, and sign it:

*I understand that I am not allowed to use the internet to assist (in any way) with this assignment. I also understand that I must write down the final version of my assignment in isolation from any other person.*

[signature]

- A. Let  $S = \{a, b, c\}$ , where  $a, b, c$  are three different objects. Show that there exists an ‘addition’ operation  $\oplus$  (i.e. a way of combining any two elements of  $S$  to make a third) so that properties (A1)–(A4) are satisfied, a ‘multiplication’ operation  $\otimes$  on  $S$  so that properties (M1)–(M4) are satisfied, and that a suitable version of property (D) is satisfied as well. Write down addition and multiplication tables for  $S$  with respect to these two operations.
- B. Bartle & Sherbert, 2.1 # 1, 2, 4, 9, 10(b), 11, 12, 13, 14, 17, 21