

# Assignment 3 (7/28)

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*This homework is due in class on Friday, 8/4. You may cite results from class as appropriate. Unless otherwise stated, you must provide a complete explanation for your solutions, not simply an answer. You are encouraged to work together on these problems, but you must write up your solutions independently.*

*You are encouraged to think about the problems marked with a (\*), but they are not to be handed in.*

## Problem 0★

Read section 2.2, 2.3.

## Problem $\epsilon$ ★

Work out the True/False problems at the end of Chapter 1. There are 50 of them in total.

## Problem 1★

Let  $f : \mathbb{R} \rightarrow \mathbb{R}$  be a continuous differentiable function that satisfies  $f(x + y) = f(x) + f(y)$  for all real numbers  $x$  and  $y$ . Prove that  $f(x) = cx$  for some constant  $c$ .

## Problem 2

Problems 2.2.(4, 7, 8, 17, 18, 21, 23, 28, 29, 53).

## Problem 3

Problems 2.3.(2, 10, 11, 13, 32★, 34, 40, 42, 45, 48, 58, 59, 64).