

CPSC 354 Report

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Abstract

Contents

1	Introduction	1
2	Homework 1	1
2.1	Question 5	1
2.1.1	Proof Explanation	1
2.2	Question 6	1
2.3	Question 7	1
2.4	Question 8	2

1 Introduction

2 Homework 1

2.1 Question 5

```
rw [add_zero]
rw [add_zero]
rfl
```

2.1.1 Proof Explanation

For this question, the Lean proof is related to the corresponding proof in mathematics because we know that we can use the additive identity property, which says that $x + 0 = x$. By using this, we can simplify $b + 0$ and $c + 0$ easily to get $a + b + c = a + b + c$, which we can determine is the same by the reflexivity property, which states that if $a = b$, then a and b are identical. Therefore, $a + b + c$ is identical to $a + b + c$.

2.2 Question 6

```
rw [add_zero c]
rw [add_zero b]
rfl
```

2.3 Question 7

```
rw [one_eq_succ_zero]
rw [add_succ]
rw [add_zero]
rfl
```

2.4 Question 8

```
rw [two_eq_succ_one]
rw [one_eq_succ_zero]
rw [add_succ]
rw [add_succ]
rw [add_zero]
rw [four_eq_succ_three]
rw [three_eq_succ_two]
rw [two_eq_succ_one]
rw [one_eq_succ_zero]
rfl
```
