

Homework assignment

CMSC 15300

Due: May 3, 2004

1. Section 4.4, problem 16.
2. Consider the recurrence equations for addition:

$$\begin{aligned}x + 0 &= x \\ x + Sy &= S(x + y)\end{aligned}$$

Show that $+$ is commutative.

Hint: prove the following lemmas:

- (a) $0 + x = x$ (by induction on x)
- (b) $Sx + y = S(x + y)$ (by induction on y)
- (c) $x + y = y + x$ (by induction on x)