

### MAT 2540 - Writing Assignment 1

For each of the items below, write a paragraph addressing each question.

- (a) Suppose that you step into an elevator at City Tech. There are 7 people in the elevator (including you) and 3 different buttons have been pushed. Find the largest integer  $n$  where you can say “At least  $n$  people are guaranteed to exit at one of the 3 floors selected.” Explain.
- (b) Explain why  $1 + 2 + 3 + \cdots + (n - 1) + n$  is  $O(n^2)$ .
- (c) Describe an algorithm, and write the pseudocode, that computes the Lucas numbers. (See problem 11 in section 8.2).