COT 3100 In-class Exercise 9

Name: USF ID:

**Problem 1: Solving Recurrence Relations by Iteration**

1. User iteration to guess an explicit formula for the sequence below defined recursively. Use the sequence formulas to simplify your answer whenever possible.

+ 1, for all integers

Guess:

**Problem 2: Solving Recurrence Relations by Iteration**

1. User iteration to guess an explicit formula for the sequence below defined recursively. Use the sequence formulas to simplify your answer whenever possible.

, for all integers

Guess:

**Problem 3: Assume that is a positive integer. For each of the following algorithm segments, how many times will the innermost loop be iterated when the algorithm segment is implemented and run?**

1. for k := 1 to n

for j := 1 to k

*[Statements in the body of the inner loop, none containing branching statements that lead outside the loop]*

next j

next i

1. for k := 1 to n

for j := 1 to k

for i := 1 to j

*[Statements in the body of the inner loop, none containing branching statements that lead outside the loop]*

next i

next j

next k

1. for k := 1 to n-1

for j := 1 to k+1

*[Statements in the body of the inner loop, none containing branching statements that lead outside the loop]*

next j

next i