

Name _____

University of Baltimore

Math 321: Discrete Structures

Date _____

Chapter 3(D): Proofs and Recursives

BECAUSE THIS IS A GRADED ASSIGNMENT, YOU MAY NEITHER GIVE NOR RECEIVE HELP. Answer each question as indicated. **Think** first, then write. **Show all your work**, and remember to **check** your answers! Place your answers in the spaces provided.

1. Prove the following: “If n is an even integer, then $n^2 - 2$ is also even”. (Hint: Any even integer can be written as $2k$ for some integer k . Likewise, any odd integer can be written as $2k + 1$.)

2. Find the value of the sum $\sum_{i=0}^4 (i+1)^i$

3. Give a recursive definition of the sequence $\{a_n\}$, $n = 0, 1, 2, \dots$ if $a_n = 6n - 3$

4. Write your recursive definition in #3 as a recursive algorithm.