

Quiz 7

December 3

Instructor: Sandy Irani

1. Sam has just joined Chocoholics Anonymous in an attempt to quit eating chocolate. He normally eats n M&Ms a day. You can assume that n is a power of 2. He decides to go on a program in which every week, he cuts down his daily M&M intake by one half. (That is, if he n M&Ms a day for one week, then he eats $n/2$ M&Ms a day for the next week, etc.) How many weeks will it take him to get down to one M&M a day? Express your answer as a function of n (i.e. do NOT use a recurrence relation).
2. A person deposits \$1000 into an account that earns 8% interest compounded yearly. Set up a recurrence relation for the amount in the account at the end of n years.
3. Find a recurrence relation for the number of binary strings of length n that have an odd number of 1's.