

MAT 129
Lab #8
March 5, 2007

(1) Please compute the following:

a.) $\binom{5}{0}$

b.) $\binom{5}{1}$

c.) $\binom{5}{2}$

d.) $\binom{5}{3}$

e.) $\binom{5}{4}$

(2) Prove the following identity. (**Hint:** Give a combinatorial proof: Count the number of subsets of $\{1, 2, \dots, n\}$ in two different ways.)

$$\sum_{k=0}^n \binom{n}{k} = 2^n.$$

(3) Give a proof by contradiction that two consecutive integers cannot both be odd.

(4) How many anagrams can be made from "success" if each anagram must begin and end with an 's'?