

Combinatorics Homework 5
S Hudson, written 10/9/13

Remark: If you don't know how to use induction yet, you'll need to learn fairly soon, certainly before Ch.7 ! Let me know if you need help, or some practice problems. I have some old help pages on this, which may need just a little re-organization. A quick review of this topic in any Discrete Math book, including a few exercises, should help.

Quiz 4: Thursday, 10/24/13, will cover HW 4 and related sections; roughly 4.5 through 6.4. It will cover the lectures through 10/17, so maybe an easy problem from early Ch 7. There may be one proof from this list -

1) The Inclusion/Exclusion Principle (The proof of Thm 6.1.1 in the book is OK. Or, I will accept the explanation of Cor 6.1.2 given in class for the case $m=3$).

2) Theorem 5.6.1 (if you are following the text proof, also explain the 'as already noted' step).

3) The Binomial Theorem (the second proof, eg the inductive proof).

I may give you some choice of proofs during the exam.

HW 5: Due Thursday, Oct 31.

Ch. 7 - 1, 2, 3a, 8, 12, 13, 14, 15, 18, 19, 21, 25, 31, 35, 38abcd, 39, 43, 45, 48ac.

Simplify your answers to 7.14 (except part d). Do more parts of 7.48 if needed to master this method.

Extra Credit problems for HW 5 (if you choose any of these, leave a clear note to the grader on your page 1):

Ch 6 - 32 [important in number theory], 33

Ch 7 - 6, 41