

Homework 11, Math 215

1. four people each select a different card from a deck of 52 cards. How many choices are there if (i) we record who selected which card and (ii) we forget who selected with card?
2. Write down row 8 in Pascal's triangle (the row starting with 1, 8) and find the binomial coefficient of 8 choose 3.
3. Find the coefficient of a^4b^6 in $(a + b)^{10}$
4. Prove that $n!$ divides the product of any n consecutive integers. (Hint: suppose the consecutive integers are $k + 1, k + 2, \dots, k + n$. Consider the binomial coefficient of $n + k$ choose n .)