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 $k + 1, k + 2, \ldots, k + n$. Consider the binomial coefficient of $n + k$ choose $n$.)