Counting problems

Some induction review

- Number of 0/1 sequences of length n with no consecutive 1's.
- Fibonacci number F_n is even if and only if $3|n$.
- Red/blue problem

Counting

- How many eight digit decimal numbers have a one in either their second or fourth digit?
- (Problem 10, Section 3.3) Let $X = \{P, R, O, F, S\}$.
  - How many lists of length six can be made from elements of X (allowing repetition)
  - How many lists of length six can be made that end in S and contain more than one O?
- (10, Section 3.4) How may permutations of the digits 0 through 9 are there in which the digits alternate even and odd?
- (16, Section 3.5) How many 10 digit binary strings are there that do not have exactly 4 ones?