# Assignment 9
Due: December 6, 9:30 am

1. (2 points) Find a recurrence relation for the number of bit strings of length n that contain the string 01.

2. (2 points) Find a recurrence relation for the number of bit sequences of length n with an even number of 0s.

3. (4 points) Find a solution to $a_n=7a_{n-1}-10a_{n-2}$ for $n>1$, $a_0=2$, $a_1=1$.

4. (4 points) Find a solution to $a_n=2a_{n-1}-a_{n-2}$ for $n>1$, $a_0=4$, $a_1=1$.

5. (4 points) Let R be a relation $R=\{(a,b)|ab=0\}$ on the set of all real numbers, determine if R is reflexive, symmetric, antisymmetric and/or transitive.

6. (2 points) Let S be a set with n elements and let a and b be distinct elements of S. How many relations are there on S such that $(a,b)\in S$?