1. Describe each sequence below recursively. Include initial conditions and assume that the sequences begin with $a_1$.
   a) $a_n = 5n$.
   b) $a_n = 1 + 2 + 3 + \ldots + n$.

2. You take a job that pays $25,000 annually. How much do you earn $n$ years from now if each year you receive a raise of $1000$ plus two percent of your previous year's salary.

3. Solve the recurrence relation by using the characteristic equation
   
   $a_n = 5a_{n-1} - 4a_{n-2}$, $a_0 = 1$, $a_1 = 0$.

4. Find the number of positive integers $\leq 1000$ that are multiples of at least one of 3, 5, 11.

5. Suppose $|A| = 8$ and $|B| = 4$. Find the number of functions $f: A \rightarrow B$ that are onto $B$. 