(13) Let X_1, X_2, X_3, X_4 be variables. How many monomials of the form $X_1^{e_1} X_2^{e_2} X_3^{e_3} X_4^{e_4}$ have degree 12? (Each exponent e_i is a non-negative integer. The degree of the monomial is $e_1 + e_2 + e_3 + e_4$.)

(14) A code-word from the alphabet $\{0, 1, 2, 3, 4\}$ is legal if the number of 0's is odd. Find a recurrence relation which gives the number of legal words of length n.

(15) Messages are words constructed from the alphabet $\{a, b, c\}$. It costs 1 dollar to send "a", 2 dollars to send "b" and 3 dollars to send "c". Find a recurrence relation which gives the number of messages which cost n dollars.

(16) Draw as many <u>non-isomorphic</u> trees as possible which have 9 vertices where one vertex has degree 4 and another vertex has degree 3.

(17) A store has 3 large bins containing candy: chocolate, vanilla, and strawberry. The owners decide to sell bags containing 6 pieces of candy. How many different types of bags of candy can they create? (Note: Two bags of candy are considered to be the same type if they have the same number of chocolate pieces, the same number of vanilla pieces and the same number of strawberry pieces.)