Problem 1.

- (i) Find the three unlabeled trees with five vertices.
- (ii) Use these unlabeled trees to count the number of (labeled) trees with five vertices.

Problem 2. Determine the functions $[8] \rightarrow [8]$ associated with the following vertebrates:

(i)

(ii)



(iii)



PROBLEM 3. Find the vertebrates associated with the following functions

(i)

	i	1	2	3	4	5	6	7	8	9
	f(i)	4	6	5	2	9	1	7	4	3
(ii)										
	i	1	2	3	4	5	6	7	8	9
	f(i)	2	3	1	5	6	1	8	8	8

PROBLEM 4. Characterize the vertebrates associated with functions $[n] \rightarrow [n]$ which are permutations (i.e., bijective).