1 – Write out the pseudo code (or description) for an algorithm that sorts an array of integers. This does not need to be a “named” sorting algorithm like bubble sort or quick sort. Just make an algorithm that sorts an array.

2 – What is the running time of that algorithm? Why is that the running time?
3 – Prove or disprove: It is impossible for the sum of node degrees (number of edges incident to a node) of a graph to be odd.

4 – Prove or disprove: If a simple graph (i.e. at most one edge between any two nodes) has $n$ nodes, it has at most $\frac{n(n-1)}{2}$ edges.
5 – The diameter of a graph is the most edges one would have to take to get from one vertex to another in the graph (i.e., the longest shortest path in the graph). Describe how you could determine the diameter of a graph.

6 – How many edges can you remove from a spanning tree before it is no longer a spanning tree? Why?