Homework #19
CSI 2350

due: Dec. 3, 2018

Turn in to Ms. Ditsch in the Computer Science office BEFORE 2 pm on December 3.

1. Using the algorithm discussed in class, insert the elements 2, 5, 8, 10, 12, 15, 20 in that order into a heap.
2. Show the preorder traversal of the heap
3. Show the inorder traversal of the heap
4. Show the postorder traversal of the heap
5. Let $G = (V, E)$ be the undirected graph represented by the adjacency list below.
   (a) Draw $G$
   (b) Processing the nodes in the order implied by the adjacency list, create a spanning tree (Section 11.4 in text) using depth first search.
   (c) Processing the nodes in the order implied by the adjacency list, create a spanning tree using breadth first search.
   (d) Prove or disprove the relation $R$ corresponding to $G$ is transitive

\[
\begin{array}{c|c}
0 & 1, 2, 3, 4, 5 \\
1 & 0, 2 \\
2 & 0, 1, 3 \\
3 & 0, 2, 4 \\
4 & 0, 3, 5 \\
5 & 0, 4 \\
\end{array}
\]