Quiz 3

CS 241—Data Structures—Fritz Ruehr

Name: _____

1. Among stacks and queues, one is described as *FIFO* ("first in, first out") and the other is described as *LIFO* ("last in, first out"); which is which?

   Stack: _____

   Queue: _____

2. Which is *easier* to implement with a linked list, a stack or a queue, where "easier" means:

   "requires less data and/or code to implement all operations in constant time (O(1))"?

   _____

3. What is the base-10 logarithm of a number n, *approximately*, given its representation as a base-10 numeral?

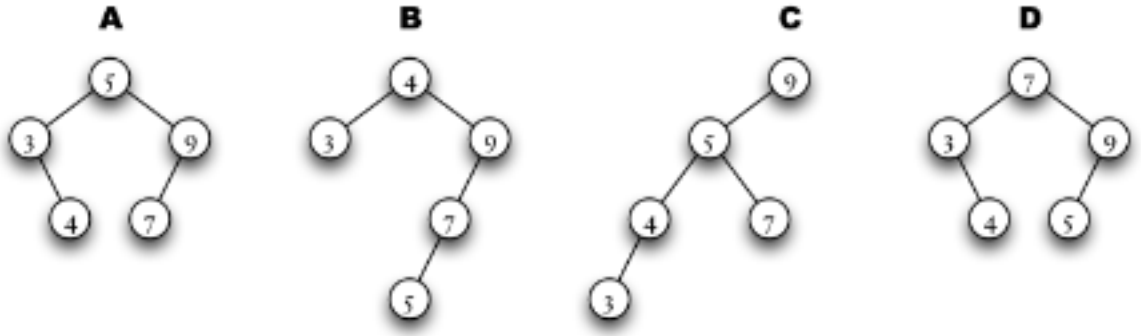
   _____

4. As long as a binary search tree is reasonably "bushy", how long will it take, in terms of O–notation (where *n* is the number of items in the tree) to find out whether or not a given item is in the tree?

   _____

5. Which of these pictures corresponds to a binary search tree which starts empry and then has the following integers inserted, as elements, in the order given?

   5 9 7 3 4



   _____

6. Which of the pictures above (if any) does *not* correspond to a valid binary search tree? *(Write the label letters for* **all** *that apply.)*