Algorithms Section 2
Spring 2003
Homework 6b
Due Tuesday, March 11

1. **[75 Points] Implementing B-Trees!** In this assignment you will implement B-Trees. In particular, your implementation should assume that $t = 2$. Your code should have a `Node` element similar to the one suggested in the lecture notes. Your program should support the operations `insert(x)`, which inserts the integer `x` into the tree, and `find(x)` which returns a boolean indicating whether or not `x` is in the tree. For insertion, use the second method described in class (in which insertion is done in a single pass down the tree). In addition, your program should have a method called `height()` which returns the height of the tree. (A tree with a single node has height 0.) Please do this programming exercise without looking at the book. The book's pseudocode isn't particularly clean or clear.

   You should turn in a copy of your code and a sample run of a test program which inserts the even numbers from 0 to 20 (in order) into the tree. Next, invoke the `height()` method and print the height of your tree. Then, the test program tests to see if each number from 0 to 20 (odd and even) is in the tree and prints "true" or "false" for each such query.