

Names: \_\_\_\_\_

## COMPSCI 250 Discussion #7: Boolean Expressions

Group Response Sheet  
David Mix Barrington and Mordecai Golin  
5 April 2024

The individual handout gives a real Java class definition for **boolean expressions**, somewhat similar to the definition of Lisp lists in Section 4.10 (which we aren't doing this semester anyway). Note that there are *not* separate node and tree objects – a tree can be a single leaf node or a composite node with two subtrees.

**Writing Exercise:** Write (in real Java) the following methods to be added to this class:

1. A method `size` that returns an `int` giving the number of nodes in the calling expression's tree.
2. A method `leaves` that returns an `int` giving the number of leaves in the calling expression's tree.

3. A method `depth` that returns an `int` giving the depth of the tree, which is the number of nodes in the longest directed path from the root node to any leaf.
4. A method `eval` to return the boolean value of the calling expression.
5. (if time) A method `toString` that returns a `String` representing the expression, in an infix format like “NOT ((true OR false) AND (false OR true))”.