1. a. The worst case complexity of add is O(logn).

1.b. The worst case complexity of search is O(logn).

2. Yes they are equal because this tree will always be balanced thus the longest length the program ever has to travel is log(n) where n is the number of nodes.

   For search specifically there may be times where the program will only have to return a node near the top level. However since the amount of nodes on each level doubles, it is more likely that the node we are looking for is on the lower levels thus it is also log(n).