

1. Worst Case Algorithmic asymptotic complexity:
  - a. Add:  $O(n)$ : This occurs when adding to the last element of a skew tree. You must traverse every element in the tree, so you are essentially traversing a linked list, giving  $O(n)$  complexity.
  - b.  $O(n)$  : This occurs in the same situation as above – deleting from the bottom of a skew tree.
  - c. Height :  $O(n)$  : This occurs every time because the function must check every branch in the tree to make sure it is getting the longest branch to determine height, therefore traversing all  $n$  elements.
2. Average Case Algorithmic asymptotic complexity:
  - a. Add :  $O(\log n)$  : No, on average, this function grows with logarithmic complexity.
  - b. Delete :  $O(\log n)$  : No, on average, this function grows with logarithmic complexity.
  - c. Height :  $O(n)$  : Yes this is the same as worst case.