

# CSE 373 Lecture 12 In-Class Worksheet – Fall 2018

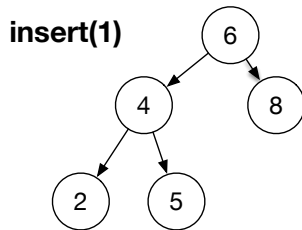
Name: \_\_\_\_\_ Date: \_\_\_\_\_

UW Student #: \_\_\_\_\_ UW Email address: \_\_\_\_\_

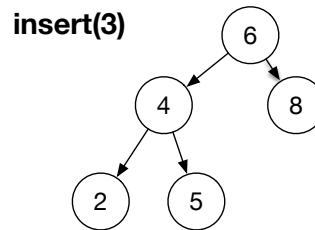
Partner name(s) for this activity: \_\_\_\_\_

Will you want to pick up your worksheet later? Circle one:    Yes    /    No

**(Q1)** Insert the specified keys in the following AVL trees. The resulting tree would be an unbalanced AVL tree. Identify the unbalanced node and indicate whether the unbalance is a “line” case or a “kink” case.



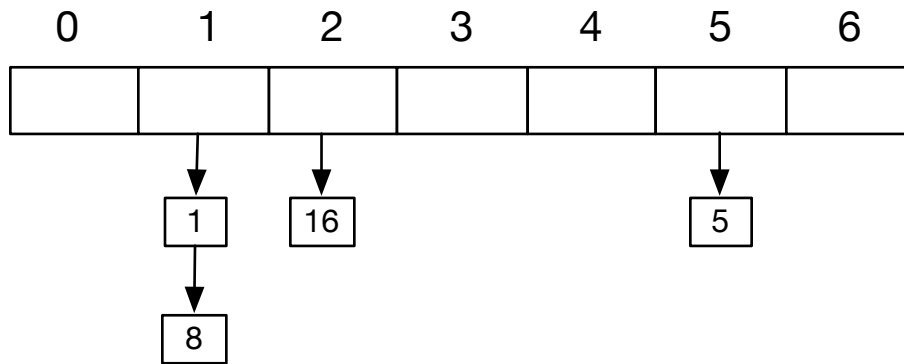
**(1a) Case?** Line or Kink



**(1b) Case?** Line or Kink

**(Q2)** Draw the AVL tree that results from inserting the keys 1, 3, 7, 5, 6, 9 in that order into an initially empty AVL tree. (*Hint:* Drawing intermediate trees as you insert each key can help.)

**(Q3)** The following hash table uses the hash function  $h(x) = x \% 7$  and separate chaining to avoid collisions. The following table shows the resulting hash table after inserting keys 1, 16, 8, and 5. Now suppose **we insert keys 7 and 9** in the hash table. What would the hash table look like (show where the keys would be inserted).



**(Q4)** What is the load factor of the resulting hash table in (Q3)

**(Q5)** What is the load factor of the following hash table?

