(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.

(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 \( h(x) = x \mod 7 \) 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).

![Hash Table Diagram](image)

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

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

![Hash Table Diagram](image)