**CSE 373 QuickCheck 3** Name: _____ Student ID: _____

For answers that involve filling-in a ☐, fill-in the shape completely: ■.

1. Mark all of the following true expressions about the height of a binary search tree of size $N$.

   ☐ $O(\log N)$ ☐ $\Theta(\log N)$ ☐ $\Omega(\log N)$

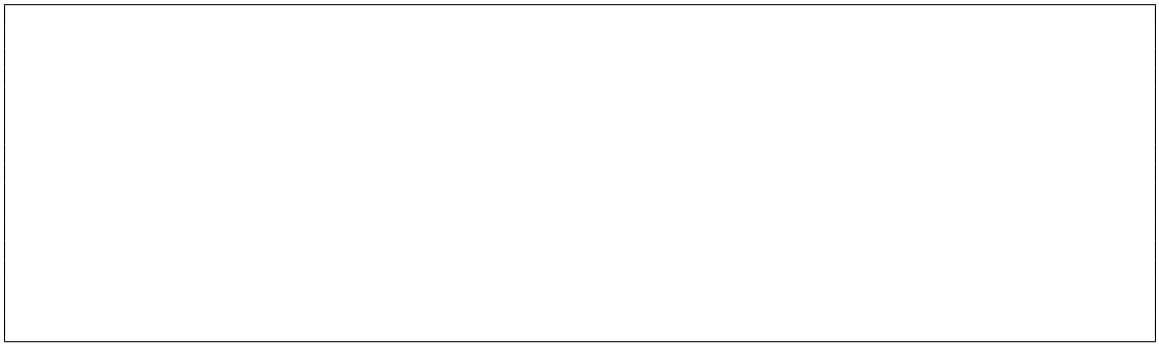
   ☐ $O(N)$ ☐ $\Theta(N)$ ☐ $\Omega(N)$

2. Mark all of the following true expressions about the height of a binary heap of size $N$.

   ☐ $O(\log N)$ ☐ $\Theta(\log N)$ ☐ $\Omega(\log N)$

   ☐ $O(N)$ ☐ $\Theta(N)$ ☐ $\Omega(N)$

3. Draw the separate-chaining hash table with $M = 4$ buckets that results from inserting the following items in this order: 1, 2, 3, 7, 8, 9, 5. Assume that the hash function for integers returns the value of the integer and that items are added to the end of the linked list.



4. Draw the separate-chaining hash table after resizing to $M = 8$ buckets.