Question 1

- b): Only saying “randomly choose left or right” without specifying probabilities
- c): Storing more than the allowed one bit per node (i.e. subtree heights)

Question 2

- Thinking a binary search tree was required rather than a binary tree
- Building a dictionary data structure that can handle insertions and deletions rather than just describing a specific tree

Question 3

- a): Confusing tower height with number of nodes in tower, leading to off-by-one (technically off-by-n) total number of nodes
- b): Making errors in computing derivatives
- c): Simply stating an answer without referring to previous parts as justification

Question 4

- Using wrong bucket idea (e.g. based on transforming x and y coordinates rather than just distance from centre)
- Distributing “rings” based on constant radius rather than constant area

Question 5

- a): Using only deletions without referencing any insertions
Question 6

- b): Searching iteratively in each $A_i$ instead of using binary search; simplifying $O((\log n)^2) \in O(\log n)$; taking the size of $A_i$ to be $i$ rather than $2^i$

- c): Only describing the worst-case algorithm instead of stopping at the least significant 0 digit; using multi-way merge from tutorial without taking advantage of the exponentially increasing array sizes

- d): Forgetting to account for insertion cost as well as scenario probability in calculating amortized cost; analyzing worst-case cost rather than amortized cost

- e): Only describing the worst-case algorithm instead of remembering the least significant 1 digit for swapping in the deleted element