1 Reading.

Chapter 6 (except 6.5–6.7)

2 Problems.

1. In class we discussed a linear-time algorithm, build-heap, for building a binary heap from an unordered array. You wisely observed that the algorithm can be improved by skipping over nodes with no children.

   (a) Give a closed-form formula for the first node that should be processed (as a function of \( n \)). I.e., what should \( X \) be in the build-heap algorithm below (input: an unordered array):

   - view array as complete binary tree.
   - for \( i = X \) down to 1, percolate-down(\( i \)).

   (b) Explain why your formula is correct.

2. Problem 6.16.