

Section 3 Worksheet: Heaps

1. For each of the following, draw the binary heap represented by the array, and state whether it is a valid heap or not; if not, what property does it violate and how?

a.

Index	0	1	2	3	4	5	6	7
Value	7	7	12	8	13	15	9	14

b.

Index	0	1	2	3	4	5	6
Value	6	5	8	6	9	7	12

c.

Index	0	1	2	3	4	5	6	7
Value	7	3	4	12	5	6	37	41

d.

Index	0	1	2	3	4	5	6
Value	6	2	8	7	14	6	9

e. Given an array representing a heap, how can you tell if the structure property is violated?

- 2.
- Start with an empty binary heap and insert elements 7, 3, 2, 5, 8 & 1. Draw the result.
 - Continuing with your tree from part a, call delete min. Draw the result.
 - Continuing with the tree, insert 4 & 1. Draw the result.

- 3.
- Start with an empty binary heap and insert the numbers 1 through 10 (inclusive). Draw the result.
 - Continuing with your tree from a, call deleteMin twice. Draw the result.