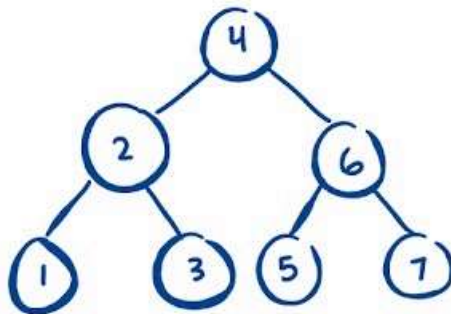


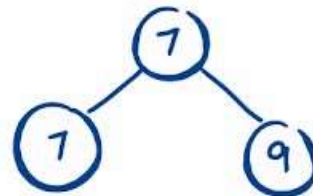
Which of the following are min heaps? \*

2 points

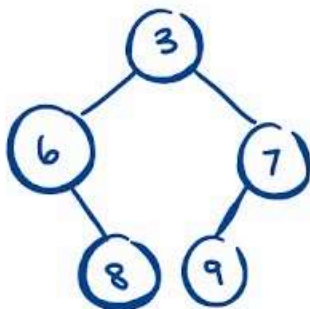
Option 1



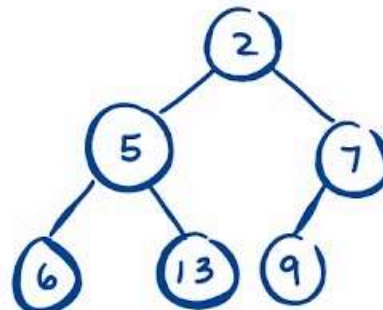
Option 2



Option 3



Option 4



☐ Option 1

☐ Option 2

☐ Option 3

☐ Option 4



Tyler sees the Heap Delete algorithm in lecture and decides to make a slight variation. When replacing the root with a node from the bottom row, he uses the **leftmost** item instead of the **rightmost** item. Afterwards, he sinks the root exactly as described in lecture. What impact will this change have? 2 points

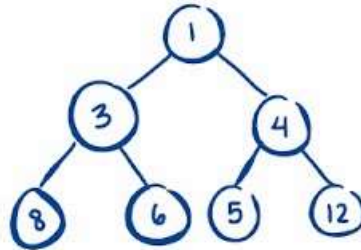
- ☐ The tree will still be a valid min-heap after the delete is complete.
- ☐ The tree will no longer satisfy completeness, resulting in an invalid min-heap.
- ☐ The tree will no longer satisfy the min-heap property, resulting in an invalid min-heap.



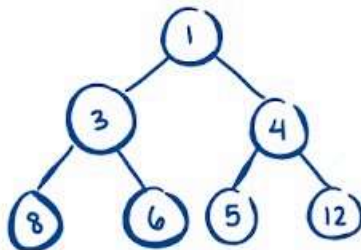
What will the following min-heap look like after inserting 5?

2 points

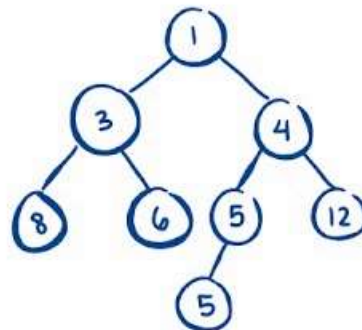
original



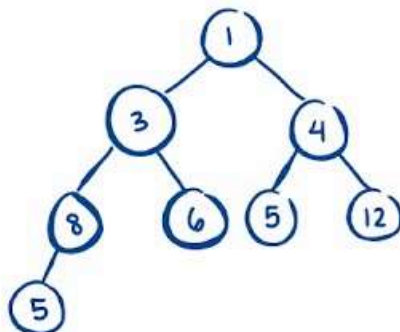
option 1



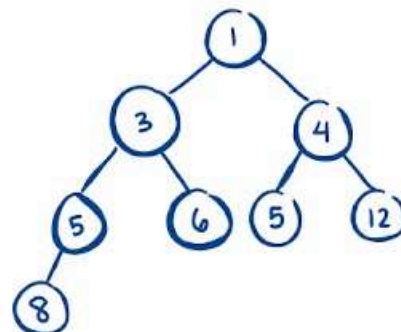
option 2



option 3



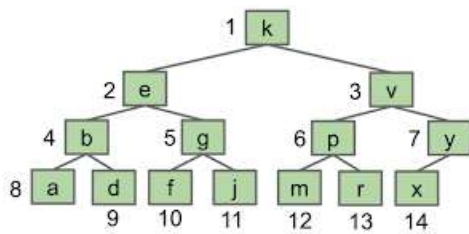
option 4



- ☐ Option 1
- ☐ Option 2
- ☐ Option 3
- ☐ Option 4



Consider the array representation of a heap in lecture. If we want to find the first item in level  $i$ , what index should we look at? 2 points



Key[] keys														
-	k	e	v	b	g	p	y	a	d	f	j	m	r	x
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

- ☐  $i*2$
- ☐ `Math.pow(i,2)`
- ☐ `Math.pow(2,i)`
- ☐ `Math.log(i)`

A copy of your responses will be emailed to [yiychen@berkeley.edu](mailto:yiychen@berkeley.edu).

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