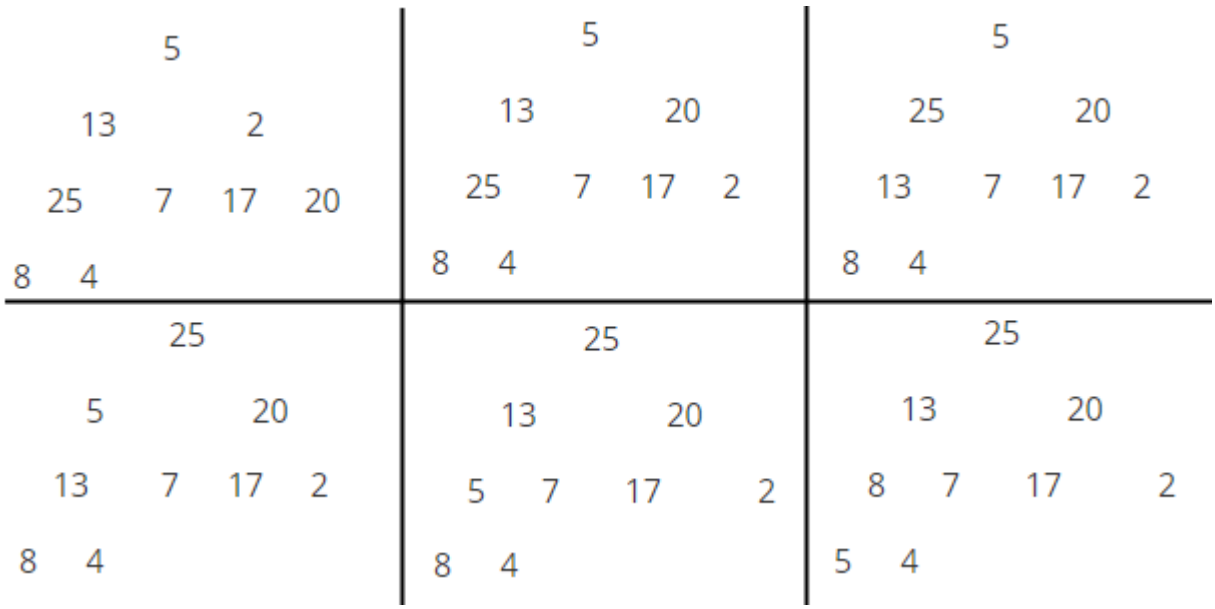
Run the heapsort algorithm on the following array of numbers: (5, 13, 2, 25, 7, 17, 20, 8, 4). Give the state of the array (a) after the *BuildMaxHeap* operation, and (b) after three iterations of the loop.

```
Build-Heap(A)
01  for i = ⌊n/2⌋ downto 1 do
02      Heapify(A, i)
```

a:

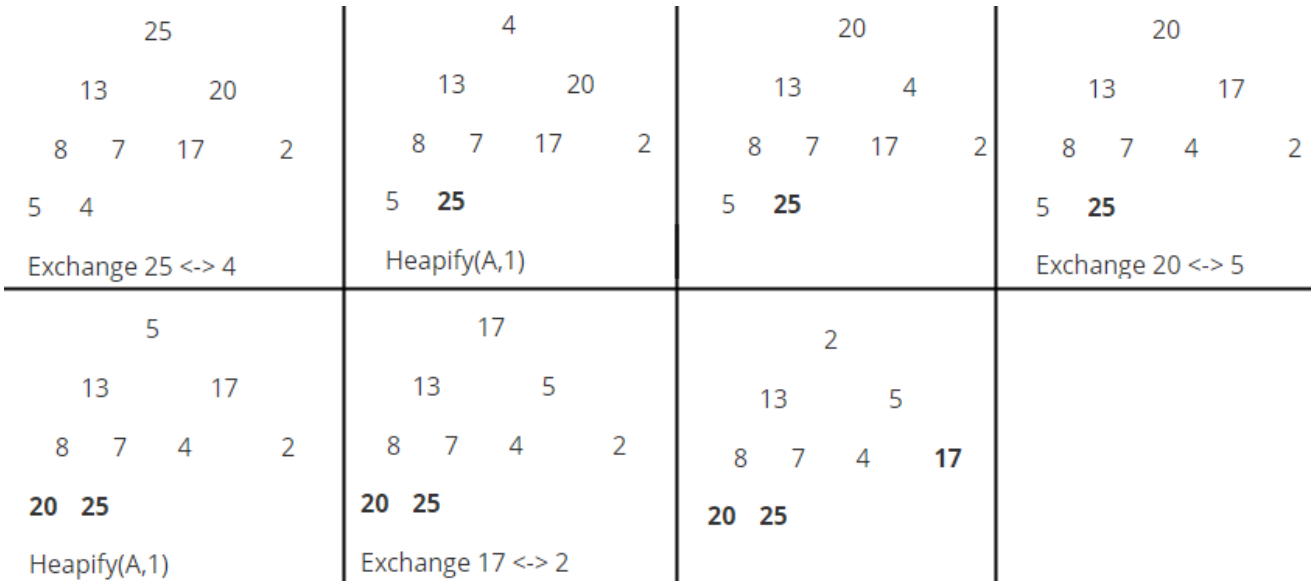


A = 25, 13, 20, 8, 7, 17, 2, 5, 4

The array is now a heap

```
Heapsort(A)
01 Build-Heap(A)
02 for i = n downto 2 do
03     exchange A[1]↔A[i]
04     A.heapsize = A.heapsize-1
05     Heapify (A, 1)
```

b:



So 3rd iteration: (2,13,5,8,7,4,17,20,25)