

## HW Solution #4

**P1:** No.  $7 > 6$

**P2:** [15, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2, 1]

→

[1, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2]

→

[13, 1, 9, 5, 12, 8, 7, 4, 0, 6, 2]

→

[13, 12, 9, 5, 1, 8, 7, 4, 0, 6, 2]

→

[13, 12, 9, 5, 6, 8, 7, 4, 0, 1, 2]

**P3:** The pseudocode:

```
HEAP-DELETE(A, i)
    if A[i] > A[A.heap-size]
        A[i] = A[A.heap-size]
        MAX-HEAPIFY(A, i)
    else
        HEAP-INCREASE-KEY(A, i, A[A.heap-size])
    A.heap-size = A.heap-size - 1
```

**P4:** The pseudocode:

```
MAX-HEAPIFY(A, i)
  while true
    l = LEFT(i)
    r = RIGHT(i)
    if l <= A.heap-size and A[l] > A[i]
      largest = l
    else largest = i
    if r <= A.heap-size and A[r] > A[largest]
      largest = r
    if largest == i
      return
    exchange A[i] with A[largest]
    i = largest
```