

6.5-6.

Each exchange operation on line 5 of HEAP-INCREASE-KEY typically requires three assignments. Show how to use the idea of the inner loop of INSERTION-SORT to reduce the three assignments down to just one assignment.

Answer.

```
HEAP-INCREASE-KEY( $A, i, key$ )
1  if  $key < A[i]$ 
2      error "new key is smaller than current key"
3  while  $i > 1$  and  $A[\text{PARENT}(i)] < key$ 
4       $A[i] = A[\text{PARENT}(i)]$ 
5       $i = \text{PARENT}(i)$ 
6   $A[i] = key$ 
```

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