Class work: Bubble-sort

Note: As usual, we denote the size of A by n.

```
BUBBLE-SORT(A)
1  For k = 1 to n − 1
2        // do a bubble pass
3        For i = 0 to n − 2
4              if A[i] > A[i + 1]: swap
```

1. Show how this works on $A = (3, 1, 5, 7, 4, 6, 2)$.
2. What can you say about the last element in A after one bubble pass?
3. What happens after two bubble passes?
4. Using this insight, argue that that algorithm is correct (argue that after $n - 1$ bubble passes the input is always sorted).
5. Give an array A that needs precisely $n - 1$ bubble passes (where n is the size of A).