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 $A$).