

**1 Prove that the while loop in searchFirstOfK in EPI 11.1 (Search a Sorted Array for First Occurrence of k) is correct.**

**1.1 What is the pre-condition and post-condition to the while loop?**

P: left = 0 ; right = A.size() - 1 ; result = -1

Q: left ≤ right ; return result

**1.2 What is the loop guard to the while loop?**

X: left ≤ right

**1.3 What is the loop invariant?**

L:

**1.4 Show that  $P \Rightarrow L$**