C-4.3

The solution makes use of the function FindPair(A,i,j,k) below, which given the sorted subarray $A[i..j]$ determines whether there is any pair of elements that sums to k. First it tests whether $A[i]+A[j]<k$. Because A is sorted, for any $j' \leq j$, we have $A[i]+A[j']<k$. Thus, there is no pair involving $A[i]$ that sums to k, and we can eliminate $A[i]$ and recursively check the remaining subarray $A[i+1..j]$. Similarly, if $A[i]+A[j]>k$, we can eliminate $A[j]$ and recursively check the subarray $A[i..j-1]$. Otherwise, $A[i]+A[j]=k$ and we return true. If no such pair is ever found, eventually all but one element is eliminated $(i=j)$, and we return false.

```
Algorithm FindPair($A,i,j,k$):
   Input: An integer subarray $A[i..j]$ and integer $k$
   Output: Returns true if there are two elements of $A[i..j]$ that sum to $k$

   if $i=j$ then
      return false
   else
      if $A[i]+A[j]<k$ then
         return FindPair($A,i+1,j,k$)
      else
         if $A[i]+A[j]>k$ then
            return FindPair($A,i,j-1,k$)
         else
            return true
```