

CS2223
HW#5 SOLUTIONS

```
3.  $S \leftarrow (x_1, x_2, \dots, x_n)$ 
   if !BlackBox( $S, q$ ) return (failure)            $O(1)$ 
   for ( $i = 1; i \leq n; i++$ )                    $n$  times
      $S \leftarrow S - \{x_i\}$ 
     if !BlackBox( $S, q$ )                         /*we really need  $x_i$  ; put it back */
        $S \leftarrow S \cup \{x_i\}$ 
   return  $S$ ;                                      $O(1)$ 
```

Since the body of the loop is executed in time in $O(1)$, the time to execute the loop (and the program) is in $O(n)$.