## Review 1

1. Fill in the blank entries when the numbers are sorted by insertion sort in non-decreasing order.

7	4	3	6	8	1	2
7	4	3	6	8	1	2
4	7					

2. Fill in the blanks with proper number of iterations.

INSERTION-SORT(A)	cost	number of iterations
for $j = 2$ to $n$	$c_1$	
key = A[j]	$C_2$	
i = j - 1	<i>C</i> <sub>4</sub>	
while $i > 0$ and $A[i] > key$	<i>C</i> <sub>5</sub>	
A[i + 1] = A[i]	$c_6$	
i = i - 1	<i>C</i> <sub>7</sub>	
A[i + 1] = key	C8	

 $t_j$ : The number of executions of the while loop test for j.

- 3. What is the running time of insertion sort when the input size is n?
- (a) best case:  $\theta()$ ,  $t_j =$
- (b) worst case:  $\theta()$ ,  $t_j =$