Complete the following table. Each box in the right two columns should indicate the time required to perform the operation in the left column of the row assuming the list is of length $n$. Each answer will be either $O(1)$, $O(\log n)$, or $O(n)$. When inserting into an array, assume the array is large enough for the new item.

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Array-based List</th>
<th>Linked List</th>
</tr>
</thead>
<tbody>
<tr>
<td>insert at the beginning of a list</td>
<td>$O(n)$</td>
<td>$O(1)$</td>
</tr>
<tr>
<td>insert into the middle of a list</td>
<td>$O(n)$</td>
<td>$O(n)$</td>
</tr>
<tr>
<td>insert into end of list</td>
<td>$O(1)$</td>
<td>$O(1)$</td>
</tr>
<tr>
<td>find a specific item, unsorted data</td>
<td>$O(n)$</td>
<td>$O(n)$</td>
</tr>
<tr>
<td>find a specific item, sorted data</td>
<td>$O(\log n)$</td>
<td>$O(n)$</td>
</tr>
<tr>
<td>append an item to a list</td>
<td>$O(1)$</td>
<td>$O(1)$</td>
</tr>
<tr>
<td>remove the first item of a list</td>
<td>$O(n)$</td>
<td>$O(1)$</td>
</tr>
</tbody>
</table>