**Answers to Review Questions**

**Chapter 8**

1. Because it uses a loop to sequentially step through an array, starting with the first element. It compares each element with the value being searched for, and stops when either the value is found or the end of the array is encountered.

2. It will have to read all 10,000 elements of the array.

3. N/2 times

4. One time.

5. Ten

6. Because it moves the items in the array only by one element at a time.

7. The selection sort usually performs fewer exchanges because it moves items immediately to their final position in the array.

8. linear (or sequential)

9. binary

10. linear

11. binary

12. ascending

13. descending

14. true

15. false

16. true

17. false

18. | Array Size | 50 Elements | 500 Elements | 10,000 Elements | 100,000 Elements | 10,000,000 Elements |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Linear Search (Average Comparisons)</td>
<td>25</td>
<td>250</td>
<td>5,000</td>
<td>50,000</td>
<td>5,000,000</td>
</tr>
<tr>
<td>Linear Search (Maximum Comparisons)</td>
<td>50</td>
<td>500</td>
<td>10,000</td>
<td>100,000</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Binary Search (Maximum Comparisons)</td>
<td>6</td>
<td>9</td>
<td>14</td>
<td>17</td>
<td>24</td>
</tr>
</tbody>
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